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E L E M E N T S
OF THE
T H E O R Y
AND
P R A C T I C E O F P H Y S I C .

ELEMENTS
OF THE
THEORY
AND
PRACTICE OF PHYSIC,
DESIGNED FOR THE USE OF STUDENTS.

PART I.
INCLUDING
THE SYMPTOMS, PATHOLOGY, AND TREATMENT
OF
ACUTE DISEASES.

BY
GEORGE GREGORY, M. D.
LICENTIATE OF THE ROYAL COLLEGE OF PHYSICIANS IN LONDON,
AND SENIOR PHYSICIAN TO
THE ST. GEORGE'S AND ST. JAMES'S DISPENSARY.

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1820.

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OF THE



PRACTICE OF PHYSIC

DESIGNED FOR THE USE OF STUDENTS

PART I

THEORY

THE SYMPTOMS, CAUSES, AND TREATMENT

OF

ACUTE DISEASES

BY

GEORGE GREGORY, M.D.

LIEUTENANT OF THE ROYAL ARTILLERY, AND PHYSICIAN IN CHARGE

OF THE GENERAL HOSPITAL FOR THE

ARMY, LONDON, AND OF THE ROYAL OBSERVATORY, GREENWICH.

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TO
JAMES GREGORY, M.D. F.R.S.E.

PROFESSOR OF THE PRACTICE OF PHYSIC IN THE
UNIVERSITY OF EDINBURGH,
FIRST PHYSICIAN TO HIS MAJESTY IN SCOTLAND,
&c. &c. &c.

THIS WORK
IS INSCRIBED
BY HIS GRATEFUL PUPIL,
AND
AFFECTIONATE NEPHEW,
THE AUTHOR.

London,
August 25, 1820.

PREFACE.

THE present volume has no pretensions to the title of a System of Physic, inasmuch as the author neither undertakes to digest all that has hitherto been written about diseases, nor to explain their varied phenomena on any one hypothesis. Such attempts indeed have frequently been made, but they have nearly always proved fruitless, and in this respect, experience only corroborates what might reasonably have been expected from an attentive examination of the nature and extent of medical science. The object of the author in this work, is to lay before the student of medicine an elementary view of the present state of the theory and practice of medicine, unbiassed by system; and more particularly to delineate those views of pathology which

appear to direct the reasonings, and to give a tone to the language of medical writers at the present period. The idea of such a work was originally suggested, by the necessity which he found of editing a short syllabus to the course of lectures, which he is delivering in the Metropolis, on the Theory and Practice of Physic. It appeared to him in the prosecution of this object, that a slight alteration of his plan might enable him to lay before the junior branches of the profession an elementary work, which might possibly prove more extensively useful.

The general design of the volume coincides very nearly with that of Dr. Cullen's First Lines, a work of which it is scarcely possible to speak in terms of adequate praise; which for perspicuity of description, acuteness of reasoning, and elegance of language, will probably long continue unrivalled, and which, for its various merits, is justly classed among the standard classical works in medicine. It cannot be concealed however, that many of the theoretical speculations in which Dr. Cullen indulged are in a great measure forgotten; that much which he thought important, is now neglected, and much that he neglected has since risen into consequence. This must ever be the

fate of medical authors, and their productions. In the progress of years, new views of disease will naturally arise, and the general aspects of the science be materially altered.

It has appeared to the author, that in the course of the last twenty years, the science of medicine has undergone so considerable a change, as to render an attempt to give a new view of the Elements of Pathology and of the Practice of Physic, not altogether presumptuous. Without desiring to enquire to what particular causes this change is to be ascribed, or how far the science has profited by it, it will be sufficient for his purpose, to allude very generally to the influence which the works of Baillie and Bichat have had in bringing it about. To the former much praise is due for directing the attention of the profession to the investigation of Morbid Anatomy, more effectually than had been done by Morgagni, his laborious but diffuse predecessor in the same branch of study. The *effects* of disease in the alteration of structure have been, by his means, more clearly developed, and in many cases the *seats* of disease more accurately ascertained.

But it is to the labours of Bichat that medicine is

more peculiarly indebted for those changes in its aspect to which allusion has just been made, and which must be obvious to all, in the general tone and character of the medical writings of the present time. His *Anatomie Générale*, and *Traité des Membranes*, present new and beautiful views of the animal œconomy, which are obviously fitted to become the basis of all pathology, by illustrating the *origin* of disease in the different structures of the body. The influence of these views on medical reasonings is daily becoming more apparent, and is now felt, if not acknowledged, by many who are yet strangers to Bichat's works. In several parts of the present volume they will be found alluded to, but it will be the work of time, to extend them by cautious deductions to the more obscure parts of the science.

It is a supposition, borne out by the evidence of history, that the progress of medicine is upon the whole in the great road of improvement. It is unfair to argue that the science is retrograde, because we occasionally recur to an antient opinion or practice. Considering the mass of books which have been written on medical subjects, it would appear scarcely possible to invent a practice, or to offer an opinion which may not be traced in the writings

of former authors ; but it is not in this way that the value of any new suggestion can be ascertained, or the state of medical practice at any one period justly appreciated. To form an estimate of either it is necessary to look to the great body of pathology, and it is here that we shall find those improvements which modern medicine may boast. Nor must it be supposed, that improvements in pathology are necessarily followed by corresponding changes in the methods of treating disease. These, it has long been observed, have continued nearly the same through every variety of pathological doctrine. It is enough to say, that the powers of medicines do not necessarily keep pace with the powers of the human mind, in investigating the causes and tracing the relations of diseases.

In this work, the main object of the Author has been to unite general views of disease with the detail of symptoms and treatment. He has rather gone into greater length into the former department, because the works commonly in the hands of medical students do not, to the best of his knowledge, contain any exposition of those leading pathological doctrines which it is his object to inculcate, and which he believes to be essential to the successful treatment of

disease, by those at least who have not yet enjoyed the advantages of experience.

In an elementary Treatise on the Practice of Physic, it is not to be expected that any new matter should find a place. If therefore the author has occasionally indulged in speculations of his own, he ought rather to offer some excuse for his presumption, than bring it forward as a recommendation of the work. It has been his object to incorporate into the volume all the latest and most approved views of his contemporaries, regarding both the pathology and treatment of diseases. He has freely availed himself of their observations, and in many instances retained their expressions. Much however that is important has no doubt been overlooked, for the great extent of the subject precluded all hope of studying, and comparing accurately, even the best writers upon the different topics of enquiry. The author is, indeed, perfectly conscious of the many imperfections of the work, and he submits it with much deference to the judgment of the public.

AN apology is certainly due for the imperfect form in which the volume now makes its appearance, (little more than half being as yet completed.) This is solely attributable, however, to the impossibility of preparing the whole for the press in sufficient time for the accommodation of those, for whom the work is principally designed. No one can be more fully sensible than the author, how closely connected together are all the branches of the theory of medicine, how impossible it is to teach one portion of it without frequent allusion to others, and how necessary is the study of chronic diseases to the thorough comprehension of the doctrines of fever. Feeling thus, the author had some hesitation in publishing the work until the second part was ready, but upon looking through the pages already printed, he thinks that the most important, at least, of the topics which the enquiry into acute diseases embraces, will be found sufficiently elucidated. He is further encouraged in the determination to submit the volume to the public in its present state, by the consideration that it does not profess to preclude the necessity of

studying other works, but merely to present, in a condensed form, an outline of those views of disease, which have been adopted by the most approved writers on the science.

Should the work, as it now appears, be received with any degree of favour by the public, it will be the author's study, not only to complete it by a comprehensive view of chronic diseases, but to correct the inaccuracies, and to supply the omissions which may be found in the following pages.

Great Portland Street,

August 25, 1820,

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INTRODUCTION.

THE diseases of the human body being very numerous, it becomes highly important to make such an arrangement of them, as may assist the memory, and if possible contribute to a clearer comprehension of their analogies and peculiarities. The first and most simple distinction among diseases is founded upon their susceptibility of relief from manual operation. This has led to the division of the science of medicine into the two great branches of Physic and Surgery, which, though for the most part taught and practised separately, are yet so intimately connected, that neither can be appreciated in all its bearings, unless viewed in conjunction with the other. Such a survey points out that the diseases of the external and internal parts of the body are all regulated by the same laws, judged of by the same means, excited

frequently by the same causes, and alleviated or removed on the same general principles. Under this impression, it would be unnecessary for me to attempt to trace the boundaries of Physic and Surgery, which, for all useful purposes, is sufficiently effected by the courtesy of the world.

Among the diseases which fall under the particular cognizance of the Physician, the first distinction is into the acute and chronic,—that is to say, into the diseases attended, or unattended by Fever. Another, equally elementary, is into constitutional and local diseases;—into those, viz. in which the whole system equally partakes, and those which depend more obviously and immediately upon the læsion of some particular organ. These distinctions are not to be considered in any other light than as artificial boundaries; or as beacons which may direct the student while in the path of education, but which may be neglected when his object is attained. It will hereafter be shewn that acute and chronic, local and constitutional diseases, are blended together in an infinite variety of ways, which it is in vain to attempt to unravel by the most ingenious contrivances of an artificial system. With this understanding however, such distinctions may be safely made the ground work

of a nosological arrangement of diseases ; and they are taken as the basis of that which is observed in the following pages.

An enquiry into any particular disease includes an account of the symptoms by which it is characterized, and in particular of those which distinguish it from other diseases with which it is in danger of being confounded, of the appearances found after death, of its causes, and of the method of its treatment. Besides which, it is of great importance to ascertain if possible its *Pathology*, that is to say, the seat, and nature of the disease. This is always the most abstruse and difficult part of the enquiry, and though, even if successfully prosecuted, it does not always lead to practical results, yet it never fails to throw some degree of light upon this object of research, and where it fails to point out the means of relief, it often suggests the reason, why that is difficult, tedious, or impossible.

In an elementary work on the theory and practice of Physic, something more however is required than a mere detail of the individual diseases to which the human body is subject. I have already stated that they have not only their points of *dissimilarity*, but

of *analogy* also, and it is an object of consequence to determine these analogies, to shew the great features of resemblance which all diseases bear, and to trace the almost insensible gradations by which they run into each other, and which enable us, either to view them as separate objects of enquiry, or as the closely connected members of a great family. This beautiful mixture of uniformity and variety in the phenomena of disease presents one of the most formidable obstacles which a work of this nature has to encounter, and it can only be surmounted, and that partially, by occasional digressions into the obscure doctrines of **GENERAL PATHOLOGY**. Upon these the Science of Medicine may be said strictly to depend. They will of course be more or less important, and applicable to practice, in proportion as they have been founded upon more or less correct views of Chemistry and Mechanics, and of those laws which regulate the vital actions of the Animal Economy. The obscurity which is acknowledged to pervade all parts of General Pathology, is in some, only faintly broken in upon by the glimmerings of conjecture. These will in the present volume be simply noticed, without attempting to estimate, with any degree of nicety, their claims to our confidence.

The work is divided into two parts, of which the first treats of acute, and the second of chronic disorders. The arrangement of diseases follows in its general outline, and in many of its details the *NOSOLGY* of Dr. Cullen, a work of great value, to which I shall have frequent occasion to refer, and to whose various merits I shall find many opportunities of doing justice. The alterations in it which I have adopted are such as appeared to be rendered necessary, from the improvements which have lately taken place in Pathology. The great features however of Dr. Cullen's system are retained, which being founded on a close observation of the phenomena of disease, will probably continue for ever to be the surest basis of any elementary view of **THE THEORY AND PRACTICE OF PHYSIC.**

PART I.

ACUTE DISEASES.

CLASS I. FEVERS.

CHAP. I.

GENERAL DOCTRINE OF FEVER.

Importance of the subject—Fever how characterized—Of Rigors and heat of Skin—Frequency of Pulse—Loss of muscular power—Disturbance in the functions of the Stomach—Other functions disturbed in Fever—Causes of Fever, predisposing and occasional—Leading divisions of febrile diseases—Nature of Fever—Periodic movements observable in Fever—Principles of the treatment of Fever.

FEVER is the most important, because the most universal and the most fatal of all the morbid affections of which the human body is susceptible. Its presence characterizes a great number of diseases, and in others which are not for the most part attended by it, the Physician must always be prepared to expect its occurrence. It is *that*, by the presence or absence of which all his views of treatment are to be regulated, by the degree of which present, he

estimates the degree of danger in each particular case, and whose rise, progress and termination he always watches with the closest attention. Some idea may be formed of the great mortality of fevers from what Sydenham has stated, who calculated that two-thirds of mankind die of acute diseases properly so called, and two-thirds of the remainder of consumption. The importance of the doctrine of fever may further be judged of by considering, how great attention has been bestowed upon it by every medical author, both ancient and modern. It has been a fertile theme, on which the ingenuity of Physicians in all ages has been exerted. How difficult, lastly, is the study of fever may be inferred from this, that though so much has been written concerning it, there is no one subject in the whole circle of medical science which still involves so many disputed points. In every view therefore the doctrines of Fever must be considered of paramount importance, and they constitute therefore, with great propriety, the foundation of all pathological reasoning.

When a person is suddenly attacked by shiverings or rigors, followed by a hot skin, a quick pulse, and a feeling of languor and lassitude, he is said to have an attack of fever. To these symptoms are usually added a loss of appetite, thirst, and restlessness. These are the leading symptoms of fever, the characteristic features by which its presence may always be detected. All the functions of the body indeed are more or less disturbed, but we select for the *definition of fever* those which are of the most im-

portance in the animal œconomy. The marks of disturbance in them afford the *characters* of fever just enumerated, and of which we now propose to treat in detail.

1. Chilliness, succeeded by increased heat of skin, is the first and leading feature of fever. The chilliness or rigor is sometimes so slight as almost to escape the notice of the patient. At other times it is exceedingly violent, so that he complains bitterly of cold. His teeth chatter. His limbs tremble. The skin is pale, rough, and contracted. The features shrink. A sensation is felt as of cold water trickling down the back. By degrees the chilliness subsides, and begins to alternate with warm flushings. A heat of skin greater than natural succeeds, and with it returns the colour of the skin. The cheeks become even flushed, and the eyes suffused. The features recover their usual size, or appear more turgid than in health. The hot stage of fever is then said to be formed, which may go off in a few hours, as in the case of an ague, or may continue for days or weeks, as in common *continued* fever.

The duration of the cold stage varies from an hour to two or even three days. Though often very slight, it is perhaps never entirely wanting, and it is at all times to be carefully enquired for and noted by the Physician, as marking the precise period of the accession of fever. This it is useful to know in all febrile diseases; but in some, as small-pox and measles, it forms the basis of our prognosis. The coldness of

which the patient complains is sometimes though not always perceptible to the touch of another, but never to the extent that might have been anticipated from the sufferings and expressions of the patient.

2. The second great feature denoting the presence of fever, is an increase in the frequency of the pulse. This is one of the earliest, and most constant of all the symptoms of fever, and perhaps would scarcely ever be wanting, but for some accidental circumstance, such as a congestion of the blood in the vessels of the brain. The feverish pulse of an adult varies in point of frequency from the slightest increase above the natural standard, to that point at which it can with difficulty be numbered.* In forming any judgment of diseases by the frequency of the pulse, great allowances must always be made for the age of the patient,—for sex, constitution and temperament of body,—for the kind and period of the disease,—for external circumstances, such for instance as the state of the air surrounding the patient, and the irritations to which he is exposed,—lastly, for the effect of diet and medicines, and even in some circumstances the position of the body. The

* For practical purposes it may be advisable for the student to make some rude divisions of feverish pulses. The first may have 84 in a minute for its average, and may range between the natural standard and 90. The second may have 100 for its average, and its range will be from 90 to 110. The third 120, ranging between 110 and 132. The last, which I would call the *rapid* pulse, has 144 for its average. It is the kind of pulse which is familiar to all in the last stages of *hectic* fever.

pulse of fever differs from that of health in other points, besides that of comparative frequency. These characters of the febrile pulse are distinguished by the terms hardness, wiriness, fulness, softness and weakness, but as they are not essential to the existence of fever, they will more properly come under consideration hereafter.

Of these leading characters of fever, rigor succeeded by heat of skin, and increased frequency of pulse, it is curious to observe what different judgments have been formed. The great bulk of mankind have almost uniformly and by common consent laid the greatest stress upon the increased heat of the body, and accordingly all the expressions for *fever* in different languages are derived from the words signifying heat or fire. This was for a long time the doctrine of the schools, Galen having taught that the essence of fever was in *præternatural heat*. Boerhaave, who investigated the phenomena of fever with great accuracy, and acknowledged the importance of these leading symptoms, yet imagined that the quickened pulse was the single *essential* symptom of fever, uniformly present from the beginning to the end of the disease, and by which the physician judges of its presence and degree. Dr. Cullen, on the other hand, placed the rigor and shivering in the first rank of febrile symptoms. He imagined that as the hot stage of fever is so constantly preceded by the cold stage, the one was *caused* by the other, and the cause of the cold stage therefore the cause of all that followed in the course of

the paroxysm. These opinions we may be allowed to consider as upon a par in point of relative merit. They may all be supported by specious arguments, but we must end by confessing, that fever does not consist in *this*, or *that* symptom, but in the co-existence and succession of many.

3. Among the various evidences of the presence of fever, the loss of muscular power was noticed, marked by the occurrence of languor and lassitude, a sensation of fatigue, and great pain referred to the muscles and joints, particularly of the back and limbs. This striking index of fever was elegantly illustrated by Boerhaave, under the title of *Debilitas febrilis*. It is to be distinguished from that weakness of muscle, which arises from great exertion, the privation of nourishment, or the violence, or long continuance of an evacuation. It is present in a greater or less degree in all fevers, though it bears no proportion to the violence or danger of the disease. It is aggravated by the slightest exertions of muscular power, and in severe cases is but partially relieved by the horizontal posture.

Disturbances in the functions of animal heat, circulation, and muscular motion, afford then the most prominent marks of fever, but every other function of the body, animal, vital, and natural, is more or less deranged, and that of the stomach in so remarkable a degree, as to demand particular notice. Loss of appetite, nausea, and often vomiting, are very common symptoms of fever, but they are of secon-

dary importance; both because fever frequently subsists without them, and they without fever. Connected with the loss of appetite, we may mention the symptom of thirst, one of the most familiar of all the characters of fever, and yet one more frequently wanting than any other. The desire is almost invariably for cold drink, and doubtless this is a beautiful provision of nature, as there is no ground for believing with Asclepiades, and the followers of his school, that any danger is to be apprehended from the indulgence of this appetite. The restlessness and want of sleep which occur in febrile diseases are characteristic symptoms which deserve notice. They are seldom wanting in the early stages of fever, and are peculiarly distressing to the patient, often continuing during the whole course of a long fever. The return of sleep is one of the surest indications of its decline.

Nothing more strikingly characterizes the presence of fever, than a general diminution and depraved state of the secretions all over the body. This is exemplified in the dryness and clamminess of the mouth, and the white and furred tongue, which are so frequently observed in all febrile diseases. The skin is dry and parched from the cessation of cuticular transpiration. The urine is scanty and high coloured. The bowels are generally constipated. The evacuations which may be procured are for the most part dark and fœtid. These and several other phenomena of fever are referable to the important general principle now laid down.

Very little requires to be said in regard to the predisposition to fever. It is observed under circumstances the most various. Every age, and condition of body is subject to it ; it occurs in every variety of season and climate ; but each of these modifies its character, and contributes to establish those minute shades of distinction among febrile diseases, which it will be my object hereafter to point out and illustrate. It may be proper to state in this place what are the leading divisions of febrile diseases, for in this way we shall come soonest to a knowledge of the *occasional* or exciting causes of fever.

A very superficial observation of nature is sufficient to point out the first distinction among febrile diseases, I mean that into *Idiopathic* and *Symptomatic*. Fever is often observed to arise without any very obvious cause, and the patient is then said to have idiopathic fever. When it occurs after an injury, or when it is coupled with redness of the throat, or acute pain of the side, he is said to have symptomatic fever. It requires a more extended observation of the phenomena of disease to remark the leading divisions of idiopathic fever, which may be considered as threefold. There are fevers which consist of paroxysms, there are simple continued fevers, and fevers complicated with eruption. The chief exciting causes of these forms of febrile disease are marsh miasmata, cold, and contagion. Among the symptomatic fevers which fall under the cognizance of the physician, a distinction has been attempted between those which are connected with local inflammation, and those

attended with hæmorrhagy. It is not one of much importance, although I have assumed it as a basis of arrangement in this work.

These are the leading divisions of febrile diseases, but to understand in what endless varieties they are presented to us, it will be sufficient to cast a cursory glance over the great variety of local inflammations with which they are combined, and to mark the extent of the influence of climate, season, and peculiarities of soil, of age, temperament, and condition of body, in modifying their symptoms.

It has been a favourite topic of enquiry among all writers on fever, What is its nature?—In what particular state of the fluids or solids of the body does it consist? The subject has been prosecuted with great diligence, but the result of the investigation is very unsatisfactory. The earliest opinion on the nature of fever was that of Hippocrates, who imagined it to be a *salutary* effort of nature to throw off some noxious matter, and it is remarkable that this opinion was entertained before the class of eruptive fevers was known, the phenomena of which certainly afford the greatest countenance to it. The same doctrine was supported by Stahl, who acknowledged however that when the morbid matter was too abundant, or the powers of the body not sufficiently energetic, fevers were hurtful. Boerhaave assumed as the essence or proximate cause of fever, a *lentor*, or viscid state of the blood, and he applied this principle very ingeniously to the explanation of the phenomena of fever.

The most rational views of the intimate nature of fever are those of Hoffman, who believed that fever consisted primarily in *diminished energy of the nervous system*. Without following this author through the minute explanation of all the symptoms of fever which he founded upon this doctrine, we may be permitted to say, that as a general principle it may be fairly admitted, and that it satisfactorily accounts for many of the first and most characteristic among them. Dr. Cullen went a step farther, and argued that the diminished energy of the brain brought on *spasm of the extreme vessels*, which spasm was the real *proximate* cause of fever. Since Dr. Cullen's time there have been several ingenious attempts to explain the pathology of fever. Dr. Wilson Philip supports the doctrine that fever consists not in a spasm of the extreme vessels, but in the præternatural distension, and consequent *debility of the capillaries*.

Each of these theories is open to many and strong objections. An insuperable difficulty indeed seems to hang over the pathology of fever, but it is fortunately of little moment. No theory of the proximate cause of fever which has yet appeared has contributed in any material degree to improve the treatment, though several of them, especially the Hippocratic, have had the effect of misleading and confusing the practitioner. The phenomena of fever give evidence of diminished energy of the brain, with increased action of the heart and arterial system, and the difficulty in the pathology of fever consists in shewing, in what manner these disturbances of function are connected with each

other. The older pathologists supposed it was brought about by the *vis medicatrix naturæ*, for which in modern times we have substituted the principle of *reaction*, but the precise mode in which this reaction of the heart and arteries is effected appears to be altogether inscrutable.

To the diminished energy of the nervous system we ascribe the languor, lassitude, loss of appetite, general uneasiness and pain of the back, which mark the invasion of fever. The functions of the brain not being as yet thoroughly understood, it is doubtful whether or not we are authorized in attributing to the same source the diminished and depraved secretion which occurs in fever, but it is highly probable that the phenomenon is in some measure connected with it. The same thing may be said of the increased heat which attends fever, the physiology of animal heat being, like that of secretion, involved in much obscurity. It would appear however that this is a mixed function, in which the brain and heart are both essentially concerned. Febrile thirst is a system which has never been satisfactorily accounted for. The restlessness, head-ache, delirium, and other disturbances of the animal functions, are certainly attributable to an increased flow of blood upon the delicate structure of the brain. They neither depend upon inflammation, as some have contended, nor are they necessarily connected with *congestion* within the brain, nor are they referable to sympathy of that organ with the chylipoietic viscera, as others have imagined.

Many of the phenomena of fever, its progress, and termination, appear to be guided by one of those laws of the animal œconomy, the influence of which is sufficiently manifest in a state of health—I mean the principle of *periodic movement*. The most obvious illustration of this which physiology affords is in the instance of the periods of utero-gestation and menstruation ; but the recurrence of our appetites, the disposition to motion, sleep, and waking, and in many, the natural evacuations, are phenomena regulated also by a principle of periodic movement. The regularity observable in the periods of the eruptive fevers, of which we shall hereafter speak more fully, is unquestionably the most beautiful and well-marked illustration of the same thing which pathology affords, but it is exemplified also in some of the phenomena of gout, mania, epilepsy, and menorrhagia. To this principle of periodic movement in the animal œconomy have been ascribed the *types* of intermittent, and the *crisis* of continued fevers. Of the former we shall treat more fully hereafter. What is essential to be known concerning the latter may find its place here. The doctrine of critical days in fever, that is to say, the supposition that febrile diseases are disposed to terminate favourably or unfavourably at certain periods of the disease more than at others, has found many advocates, and some opposers, even from the earliest times. The very general reception which it has met with among mankind makes me unwilling to distrust it altogether, and if we bear in mind how many circumstances may contribute to dis-

turb the regular course of the disease, we may admit the doctrine of critical days in fever without much risk of error. There has been some dispute about the precise days, but they are generally set down as the seventh, ninth, eleventh, fourteenth, seventeenth, and twenty-first, counting from the invasion of the cold fit. Of these the three first are called the tertian, and the others the quartan crises. It is seldom that these observations can be verified in the fevers of this country, which run their course with much less regularity than those of warmer climates.

A few general remarks on the principles which should regulate our treatment of febrile diseases will conclude what is to be said regarding the general doctrine of fever.

I. The most important feature in this view of the subject is the natural tendency in all febrile diseases to run a certain course, and to terminate in the restoration of health. It is this circumstance which forms so prominent a distinction between acute and chronic disorders. It is observable in many local affections attended with fever, but it is very strikingly illustrated in the cases of continued fevers, and the exanthemata. The latter will always, and the former will very frequently run their regular course, in spite of all the efforts of art. In antient times, nay even at no very distant date, it was made a question whether it was safe and proper to cut short a fever. The question is set at rest with regard to the *propriety* of doing so, but the possibility of it is still very ques-

tionable. It may be sometimes practicable, but it can never become the foundation of our treatment in febrile diseases. The natural tendency of fever to come to a crisis, or to work its own cure, may on the other hand be often kept in view with the best advantage, and though the extravagancies of a *medecine expectante* are justly blameable, the spirit of the doctrine should never be lost sight of.

2. The second point which I think of importance in regulating the treatment of fever is the necessity of studying symptoms, and of deducing from them the indications of cure. The pathology of fever is so obscure that it affords but little help in determining the plan of treatment. In many diseases, apoplexy for example, or dropsy, individual symptoms are of little practical importance, for we treat them by a consideration of their cause, but in fever the alleviation of particular symptoms is often a matter of the highest importance. The variations too in the symptoms of a fever are often great and rapid, and with them, must vary our views of the actual condition of the body, and consequently the plan of our treatment. It will be seen hereafter that this point of doctrine applies to all the forms of idiopathic fever.

3. The necessity of attention to the nature of the prevailing *epidemic* is the last point which I would urge. Epidemic diseases are with very few exceptions febrile, and it is a curious but well ascertained fact, that the epidemics of particular seasons acquire a particular character, the knowledge of which assists

very materially in forming a judgment, as to the treatment proper to be pursued in any individual case. Sydenham was among the first authors who directed their attention to the *epidemic character of seasons*. He pointed out, not only that different febrile diseases prevailed in different years, but that the same form of febrile disease assumed in different years different characters, and required corresponding changes of treatment. This important doctrine might be illustrated not only by the phenomena of continued fevers, whose characters are so infinitely varied, but by those also of agues, and the inflammatory affections of the thorax and abdomen. The principle is observable even in the phenomena of eruptive fevers, such as small-pox and measles, which are scarcely modified by the influence of any other cause.

CHAP. II.

VARIETIES AND SYMPTOMS OF CONTINUED FEVER.

Nosological Divisions of continued Fever—Circumstances modifying the symptoms of continued Fever; Climate, and Season; the state of the Air; Constitution and habit of Body—Symptoms of Inflammatory Fever—of common continued Fever—of Typhus—of Fever complicated with local affection—causes of such complication—of the Organs and Structures affected in the course of Fever—Nature of the local affection—Morbid Appearances from continued Fever—Period of Fever at which local determinations take place—State of oppression in Fever.

IDIOPATHIC FEVER was stated in the last chapter to admit of a three-fold division, viz. into intermittent, continued and eruptive fevers. We shall begin by the consideration of continued fevers, and in the present chapter shall confine our attention to the various appearances which they exhibit.

The views of Physicians with regard to continued fevers have undergone a number of very remarkable changes, to which nothing has more essentially contributed than the infinite diversity of symptoms by which they are characterised. Nosologists have been at great pains to note minutely these different symp-

toms, and have founded upon them their divisions of continued fever. Boerhaave has three, Linnæus four, Sauvages five, and Macbride five and twenty species of continued fever. Some have assumed as the basis of their arrangement, the comparative duration of the disease; but the generality of authors, have made the difference of symptoms the groundwork of their distinctions. From the very earliest periods it was observed, that some fevers shewed symptoms of strong inflammatory action, while others exhibited marks of depressed nervous energy, and, as it was said, of *putrescency*. One of the first distinctions therefore among fevers was into the *febris ardens* and the *febris putrida*. There being however a variety of fevers, which shewed first the one, and then the other of these sets of symptoms, Nosologists added a third class, or that of *mixed fevers*. Such is the arrangement of Dr. Cullen, and the terms *Synocha*, *Typhus*, and *Synochus*, were employed by him, to express these fundamental divisions of continued fever.

Of late years a different view of the varieties of continued fever has been gradually gaining ground. An increased importance is attached to the *exciting cause*, and the term *typhus* is now restricted to a particular form of continued fever, which we shall presently describe, the distinguishing feature of which is, that it is propagated by contagion. To the other varieties of fever, we apply the terms *inflammatory*, and *common continued*. Another important distinction among continued fevers is now derived from

the circumstance of their affecting all organs and functions equally, when they are called *simple fevers*, or implicating one organ or structure more particularly than another, and deriving from it some peculiarity of character. These distinctions among fevers, though apparently vague, are yet sufficient for all practical purposes. They do not withdraw the mind from the important consideration, that the Nosological divisions of fever are arbitrary, and calculated, not to direct the method of cure, but to increase the facility of instruction.

Continued fevers have all a common character, but various circumstances serve in a remarkable manner to modify it. What these are, and the extent of their influence, is a subject worthy of accurate investigation.

1. The most important of them all is climate. Its effects upon the general character of man, the structure of his body, his stature, his intellectual faculties, his habits, and dispositions, it is the province of the physiologist, the natural historian, and the political œconomist to unfold. Its influence upon the morbid conditions of the body, we shall have frequent opportunities of illustrating. We shall see it exemplified in the phenomena of hepatitis, gout, scrofula, dysentery. Of all states of disease, as fever is the most general, so is it that, over which climate has the greatest modifying influence. The important principle to be kept in view is, that a hot climate is favourable to the developement of inflammatory fever,

while the low, or nervous form of fever prevails chiefly in cold or temperate climates. Season may be considered as modifying the character of continued fever much in the same manner as climate. The spring and summer seasons favour the prevalence of inflammatory fever ; autumn and winter of the putrid or nervous fever. Warm climates and seasons give a tendency to complications of abdominal disease with fever ; cold climates and seasons, on the other hand, to affections of the thoracic viscera. The evidences of this point of doctrine will appear when we come to treat of the diseases of particular organs.

2. The second of those circumstances which strikingly modify the symptoms of continued fever is the state of the air. It has long been known, that the most dangerous fevers are those which prevail in impure states of the atmosphere, arising from the neglect of proper ventilation ; such for instance as frequently occur in camps, jails, crowded ships, and small apartments. Such a vitiated state of the air, gives occasion to those symptoms which are called low or putrid, while on the other hand a free circulation of cool and pure air conduces to the development of those which are now generally called the symptoms of excitement. This is sometimes exemplified in a remarkable manner, in the sudden removal of a patient labouring under continued fever from an impure atmosphere into the spacious wards of a well-regulated hospital. The symptoms have under such circumstances been observed to alter very materially, and the constitution to undergo such a change

as to require, and to enable the practitioner to carry into effect, measures which were previously inadmissible. But besides those obvious qualities of the air which modify the symptoms of fever, there are certain others, undiscoverable by any of our senses, which appear to have great influence over them. To these we refer the curious phenomenon alluded to in the last chapter,—the diversities in the character of epidemic diseases. A few conjectures have been thrown out by Sydenham and others, with the view of explaining this remarkable circumstance, but the cause has hitherto, and will probably for ever continue to elude our research.

3. The last which I shall mention in an enumeration of the important circumstances which modify the symptoms of fever is not, like the former, general in its application, but one, the operation of which is confined to the affected individual;—I mean, constitution and habit of body. The extent of influence which peculiarities of constitution and habit of body exert over the symptoms and character of fever is however less than might naturally have been expected. The important fact indeed is, that under circumstances the most opposite, fever often shews the most striking uniformity—that the young and the old, the robust and the delicate, the active and the idle, the dissolute and those of regular lives exhibit, when attacked by fever, the same series of symptoms. Still a certain degree of allowance must always be made for the constitution and habit of body of the individual affected, and it has been found that a number

of minute circumstances referable to this head, tend in different ways to the modification of fever; of these the principal are, the period of life, the temperament of body, the tone of the fibre, the kind of diet on which the individual had been previously nourished, and the state of the mind.

The period of infancy enjoys a very remarkable exemption from idiopathic continued fever, although abundantly susceptible of fever in other forms. The period of youth, the sanguine temperament, and a full diet of animal food, with a proportion of wine or distilled spirits, give a tendency to an inflammatory character in the fever. On the other hand, weakness of body and flaccidity of fibre, whether the effect of original formation, or of previous diseases, or of great exertion, or long watchings, or of deficient nourishment, conduce to the low and typhoid form of fever, and it is therefore in individuals of this habit of body, that the purest cases of typhus are observed. The state of mind is universally found to have great influence over the susceptibility of the body to the reception of continued fever. The depressing passions, anxiety, fear, despair, dispose to the propagation of fever, while hope and confidence serve, in a manner no less remarkable, to ward off its attack, or to stem its violence.

I have already attempted to explain that though continued fever should be considered as a single *genus*, yet for the convenience of illustration and description, it is useful to make some broad distinctions

among its various forms. I pointed out a division into inflammatory, common continued, and typhus fever, as one that was well adapted for an elementary view of the subject. The symptoms commonly presented by these different forms of fever may next come under our notice.

Inflammatory fever, the synocha of Dr. Cullen, is not often met with in its exquisite forms in this country. It is that however, which fever assumes in all hot climates where there is no *peculiarity of soil* to interfere with its developement. It is instanced in the summer fever of Sicily and the Mediterranean, as described by Dr. Irvine, Dr. Burnett, and others. Its invasion, which is generally very sudden, is marked by excessive prostration of strength, with some shivering, soon succeeded by a violent heat of skin, pain of back, head-ache, giddiness, and general uneasiness. The head-ache is very acute, the eyes are suffused, the countenance flushed. The temporal and carotid arteries beat violently. There is often bleeding at the nose, with restlessness; and occasionally, but by no means constantly, delirium. The tongue becomes rapidly coated with a thick fur. Nausea, vomiting of bile, great thirst, and a costive state of bowels prevail. The pulse varies from 100 to 120, strong, full, and regular. The respirations are quick: the skin hot and excessively dry: the urine scanty and high coloured. Violence in the degree of symptoms, and rapidity of progress, are the prevailing characters of inflammatory fever. If suffered to run its course, it may prove fatal in less

than 24 hours. If proper measures are pursued, the disease will yield, but unless they are speedily resorted to, lingering convalescence will be found to follow, attributable in all probability to some local mischief in the delicate structure of some organ, particularly the brain, occasioned by the violence of the first attack.

The common continued fever of this and of most other temperate climates is less sudden in its invasion, less rapid in its progress, and all its symptoms are less violent. The patient is occasionally under its influence several days before he is confined to bed. The pulse at first is frequent and strong, but by degrees it loses strength without diminishing in frequency. The duration of the disease is very various, but when once the symptoms of fever have subsided, the convalescence is usually rapid.

To the severest cases of continued fever which occur in temperate climates, which have their origin, as we shall presently explain, either always, or for the most part, in contagion, and which exhibit a different class of appearances to those which characterize inflammatory fever, Physicians apply the name of *typhus*. The detail of symptoms which has been already given obviously points out that in inflammatory fever, a high degree of arterial excitement is present, and such are classed together therefore under the title of the *symptoms of excitement*. With them, although in a minor degree, typhus fever may begin, but ere long they are succeeded by a set of symptoms which denote a

great depression of nervous energy, and which are familiarly designated under the title of the *typhoid* symptoms, or the *symptoms of collapse*.

Many of the characters of typhoid fever are unsuſceptible of accurate description, of these the most remarkable is the *expression of countenance*. It is a very peculiar expression of *anxiety*, joined to a flushing of the cheeks. It is seldom wanting, and it is a very striking characteristic of typhus. The pulse in this form of fever is very frequent, generally averaging from 120 to 130, small and weak. The tongue, at first very much coated, becomes in the progress of the disease brown, or almost black, and black sordes collect around the teeth; it is dry and parched; occasionally instead of being coated, it appears smooth and præternaturally red. The evacuations from the bowels are exceedingly fœtid, and often black, or mixed with blood. As the disease advances they are passed involuntarily. The urine is in like manner fœtid, turbid, and in small quantity. The skin is hot and dry. From an early period of the disease delirium occurs, of a low muttering kind; and tremors, subsultus tendinum, with total want of sleep, and great uneasiness or *restlessness* supervene. Sometimes however there is *stupor*. Typhus is further characterized by extreme weakness of muscular fibre. The slightest exertion, such as rising in bed, aggravates all the symptoms, or even brings on a fit of syncope. The body emaciates rapidly. Effusions of blood underneath the skin take place, and appear in the form of livid spots or streaks, called petechiæ and vibices. The duration

of the disease varies from two to three, or even four weeks, when, unless some favourable change or crisis takes place, the countenance collapses, the features shrink, the eye loses its lustre, the pulse sinks; and hiccup, rattling in the throat, coldness of the extremities, and profuse clammy sweats, with a cadaverous odour of the body, indicate the approach of death.

Such are the leading characters of typhus fever. They will be observed to differ from those of inflammatory fever in several important points, but it must be equally obvious that they agree in affording evidence of derangement of function in every organ of the body,—the brain, the heart, the lungs, the stomach and bowels, the liver, the kidneys and the skin. Cases both of inflammatory and of typhus fever have been observed, which have followed the progress I have now attempted to describe, implicating equally every organ and function; but these cases of *simple* fever are comparatively rare. It is much more common to see one or other of these organs particularly affected. What the circumstances are which direct the violence of the febrile action upon one organ or structure in preference to another, does not always appear, but it can sometimes be satisfactorily explained. Peculiar conformations of body, hereditary predispositions, or the weakening of parts by previous diseases, have a decided influence.

A stout young man, with a short neck, and of a full habit of body, if attacked by fever, will be more

likely, *cæteris paribus*, to have symptoms denoting determination to the head, than a tall thin young man, with a narrow chest, and subject to cough. The latter, during the progress of fever may very probably have difficult breathing, with pain of side, and purulent expectoration. Much may be attributed also to the influence of climate and season, heat favouring the disposition to abdominal, and cold to thoracic affections.

But it must be confessed there is something more than this required to account for the phenomenon. What the exact pathological principle is, upon which it depends, has not indeed been hitherto explained, although some attempts towards elucidating it have been made. It appears, from numerous observations, that various states of disease of the brain and its coverings, both acute and chronic, such as blows on the head, fractures of the cranium, lacerations of the dura mater, tumours and abscesses within the substance of the brain, are not unfrequently attended by disease of distant organs, attributable only to a state of disordered circulation in the encephalon, and disturbance in the functions of the brain. To the same cause, whatever be its precise nature, we refer many of those local affections with which fever is so frequently complicated. It is a point of some importance to determine what the organs and structures are, most liable to become affected in the course of fever, what is the nature of these local affections, and at what periods of the fever they chiefly occur.

Of the organs liable to become more particularly implicated in fever, the most important is the brain. The symptoms by which we judge of this having taken place, are those which we shall hereafter describe when treating of phrenitis and apoplexy. The second in point of importance is the mucous membrane of the stomach and bowels. The symptoms denoting a particular affection of this structure are now usually called the *gastric symptoms*. They are pain in the epigastrium, nausea and vomiting, a sense of fullness in the bowels, diarrhœa or dysentery. The liver may next be mentioned as frequently affected in the course of fever. It is not observed to any great extent in this country, but it is very commonly met with in hot climates, and it gives a character to the endemic fevers of those regions.

The pleura and peritonæum are occasionally attacked, but next to affections of the head, by far the most frequent of all the local complications with fever, is disease of the mucous membrane of the bronchii, appearing in the form of cough, difficult breathing, increased expectoration, and general diffused pain over the chest.*

Much controversy has taken place regarding the nature of the affection, under which the different

* Dr. Crampton, in an essay, entitled "Medical Report, containing a brief account of the late Epidemic in Dublin," has given (page 48) an estimate of the relative proportions in which different organs were there pressed in fever. Out of 755 cases, 550 complained of the head, 129 of the chest, and 76 of the abdomen.

organs labour when attacked in the course of fever. Dr. Clutterbuck, who urged the importance of these local determinations in fever, believed that it was inflammation ; and seeing how much more frequently the brain was affected, than any other part of the body, maintained that continued fever was essentially inflammation of the brain. Dr. Armstrong argues, that in a large proportion of cases, the vessels of the affected part are in a state, not of inflammation, but of distention, or *congestion*. He acknowledges indeed, that inflammatory affections of the brain and other viscera are sometimes coupled with typhus, but the peculiarity of his views of fever consists in this, that while in *inflammatory typhus*, he imagines the seat of disease to be in the system of arterial vessels, so in the *congestive typhus*, it is in the branches of the venous system where the mischief occurs. The distinction between the inflammatory action of arterial capillaries, and the congestion of blood in veins, is, according to this author, marked by corresponding differences in the local symptoms. He maintains that it explains the diversities of morbid appearances found after death, and that it may serve as a guide in directing us to the proper methods of treatment. The reasoning of Dr. Armstrong in support of these doctrines is ingenious, but by no means satisfactory. Allowing the possibility of such a state of congestion in the venous system as he supposes, (which however is very problematical) he has yet failed in shewing that it may not, and does not run into the other. We cannot therefore attach any great degree of pathological or practical importance to the distinction

between inflammatory and congestive typhus. The appearances on dissection in those who die of fever, sufficiently point out, that danger is chiefly to be apprehended from the occurrence of inflammation, and that against such a state, the measures of the Physician are to be directed, when he has evidence of local disease complicated with continued fever.

Morbid anatomy throws but little light on the pathology or nature of fever, but it points out its effects, and illustrates in particular those local affections which we have mentioned as so often coupled with fever. The most common morbid appearance in cases of fever, is a gelatinous effusion upon the surface of the arachnoid membrane. Occasionally serum is found in the ventricles ; besides which we perceive in many cases a fullness of the vessels of the brain, appearing as if they had been subjected to anatomical injection. Occasionally we meet with extravasations of blood, or the deposition of purulent matter. In the thorax we find marks of inflamed pleura. Pus is sometimes found in the cavity of that membrane. In the abdomen there are occasional evidences of peritonæal inflammation, but the most usual appearance is that of ulceration, more or less extensive, of the mucous coat of the intestines.

The last topic to which I proposed to advert in this division of the subject, was the period of fever at which these local determinations are most usually observed to take place. Frequently it is at the very onset of the disease, and this circumstance is important, as leading

to the distinction between the states of *oppression* and *collapse*. The attack of fever is always attended by weakness, but if the blood be at that period particularly determined to the brain, a state of apparently extreme debility is brought on, which has often intimidated the practitioner, and prevented the adoption of those decisive measures which might then be *safely* had recourse to, and which alone could ensure a favourable termination. In a large proportion of cases where great weakness attends the onset of the disease, the symptom is to be attributed to a load oppressing the brain, to a state of oppression, and not of weakness, exhaustion, or as it is called, collapse. Local congestions however occasionally take place in the progress of fever, as well as at its commencement. They have occurred even when the febrile symptoms have subsided, and the patient been considered convalescent. To decide, whether the symptoms which then supervene are referable to a state of oppression or collapse, is one of the most difficult points in the practice of physic. It can be effected only by a close attention to particular symptoms. The pulse is for the most part the safest guide, but the appearance of the countenance, the position of the body, and other minutiae which *clinical* observation can alone teach, assist materially in the decision of the question.

CHAP. III.

CAUSES OF CONTINUED FEVER AND PROGNOSIS.

Exciting causes of continued Fever—Of cold as the cause of the disease in general—Of fever in particular—Alternations of Atmospheric Temperature—of Contagion—First accounts of Contagion—General doctrines of Contagion—of Fomites—Other supposed causes of Fever.—General principles of Prognosis in all diseases—in continued fever in particular—symptoms of Putrescency—favourable symptoms—average of mortality occasioned by continued Fever.

OF the exciting causes of continued fever the most frequent is cold, and as cold will hereafter be mentioned as an occasional cause of various diseases, both acute and chronic, it becomes a matter of some importance to determine in what manner cold is to be considered as the cause of disease, and particularly of febrile disease. The simple diminution of temperature seems to give a predisposition to some forms of chronic disease, particularly scrofula, but its effect is never fever. We are constituted so as to bear extremes either of heat or cold for a long time, without suffering in our health. But though cold applied to the body under common circumstances does not create fever, the case is widely different when it is applied suddenly, or partially, or when the body is overheated and perspiring profusely, either from the nature of the climate, or from great

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exertion, or exposure to artificial heat. The importance of the function of perspiration in regulating the uniformity of animal heat, and the functions of other organs, is well known to the physiologist and is illustrated by him in various ways. It seems probable that it is through the medium of this function that cold acts in the production of fever. It closes the pores, checks perspiration, and drives the blood in increased quantity upon the internal organs. It is not difficult to understand that this disturbance in the operations of the animal œconomy should be occasionally productive of bad effects, and experience shews that of these the most usual is fever. When once fever is excited, it may assume different appearances. In many cases the mischief falls upon some particular organ of the body, the tonsils, the lungs, the liver, the bowels, or the joints, and is directed upon them, sometimes without any apparent cause, at other times in consequence of some cognizable circumstance, such, for instance, as weakness in the structure of the organ, or a liability brought on by previous disease. This is an important law of the animal œconomy, which serves to explain many points in pathology, and which will therefore be frequently referred to. There are few constitutions indeed, which have not some one organ more disposed to disease than another. Original conformation, age, mode of life, habits, diet, climate and season, and the disposition left by previous disease, with many others, contribute to this, and it is one great source of the varieties of disease. According to the constitution then of the individual, will in many cases be the result of exposure to cold. When a general disturbance of all

the functions of the body takes place, cold is said to generate fever.

Closely allied to cold in the mode of its operation is *sudden alternation of atmospheric temperature*. This has been observed in all countries to be a fruitful source of febrile diseases, and of none more than continued fever. No where is it better exemplified than in this country so remarkable for the unsteadiness of its climate, which in the course of four-and-twenty hours not unfrequently exhibits the succession of the four seasons. These sudden changes of atmospheric temperature are particularly favourable to the production of fever, and of themselves they appear capable of exciting it. In this way we account for the greater comparative frequency of continued fevers, hæmoptysis, and inflammatory affections of various kinds in spring and autumn than at any other period of the year.

Continued fever however has another and a very important exciting cause, which frequently operates where neither cold nor alternations of atmospheric temperature can be suspected, as where fever attacks persons shut up in close rooms with others labouring under the disease. When fever appears under such circumstances, it is said to have its origin in *contagion*. A number of the most important doctrines in the science of pathology are closely associated with the subject of contagion. From the earliest periods at which it became an object of enquiry, this has been acknowledged, but the investigation is obscure and

difficult, and has proved a source of endless controversy. Many of the disputed points in medicine are interesting only to the man of science, but the doctrines of contagion are of general interest, because involving practical considerations of the highest importance. Without attempting to clear up all the difficulties in the way of the enquiry, I shall be satisfied with a brief enumeration of its leading positions, and of the principal points in dispute,

1. Attempts have been made to throw discredit upon the doctrine of contagion as the cause of fever, by shewing that it was for a long time either unknown to or discredited by physicians. It is certainly a curious fact, that for the first dawnings of information concerning it, we are indebted not to Hippocrates or Galen, but to antient poets and historians. Thucydides, in his account of the epidemic fever or plague that raged in Athens during the Peloponnesian war, shews that he understood contagion in the sense in which we now use the term ; noxious matter from one morbid body producing a similar disease in another. In Plutarch's Life of Pericles we read, that whilst that commander was laying siege to the City of Epidaurus, a distemper prevailed in his army, which not only carried off his own men, but *all that had intercourse with them*. Livy, in the account of a camp fever which affected the armies of the Romans and Carthaginians at the siege of Syracuse, distinctly states that it was propagated by contagion ;

“ Postea, curatio ipsa et contractus ægrorum vulgabat morbos.”

LIV : lib. xxv. cap. xxvi.

Virgil and Lucretius employ the term *contagion* to express the manner in which a disease of sheep spread among the flock. Medical writers were, for the most part, very inattentive to contagion until the time of Sydenham, in whose work (sect. 2. chap. 2.) a distinct reference to contagion may be met with. Boerhaave and the followers of his school were very incredulous on the subject of contagion. Their ideas about it too were very imperfect and confused, from the circumstance of their blending the notion of contagion with that of marsh miasmata. Dr. Huxham, Dr. Lind, and Sir John Pringle, are the great original writers on contagion, particularly on that of continued fever. Since their time the subject has undergone the most rigid examination, and as we have said, has given rise to the most discordant opinions.

2. Much confusion has been introduced into the subject of contagion by the employment of the term *infection*, and by the different acceptations in which contagion and infection have been taken.* This has been increased from the want of proper attention to the distinction between common contagion and specific contagion. Diseases which cannot be produced in any other way than by contagion, are said to have their origin in *specific contagion*. Of this kind are small-pox, measles, the plague, and syphilis. Diseases which

* See "Evidence taken before a Committee of the House of Commons, appointed to enquire into the validity of the Doctrine of Contagion in Plague"—1819. The different meanings attached to the terms contagion and infection by different witnesses are curious, and not altogether uninteresting.

occasionally produced by contagion, are yet sometimes owing to the operation of other causes, are said to arise from *common contagion*. Of this kind are catarrh, erysipelas, ophthalmia, and typhus. The laws of common and specific contagion are in many respects similar, but they have also their points of difference. To illustrate these, and to determine the peculiarities of each individual contagion, will be an important object in future parts of the work,

3. In the last paragraph I have assumed as an established principle what has been, and what is still made the subject of keen dispute, viz : that typhus fever does originate from contagion, and that it is of the kind which we have called *common*, in opposition to specific contagion. Both these points have been called into question. By a few, and happily a very few, it has been contended that the notion of a contagious origin of typhus fever is altogether unwarranted ; but the views of these *anti-contagionists* are so completely at variance with the generally received opinions of medical men, and so irreconcilable with facts obvious to all mankind, that any formal refutation of them is unnecessary. On the other hand, there have been, and there continue to be, physicians who believe in the *exclusive* origin of typhus from contagion, who maintain that no disease can propagate itself by contagion which had not its own origin in contagion ; in other words, who deny that common continued fever under any, the most adverse circumstances, can ever spread by contagion. This opinion involves the difficult, but for the most part idle question, how con-

tagious fevers ever originated ; but setting this aside, it may fairly be argued that it is neither borne out by observation, nor by reasoning. There is nothing improbable in the supposition that what originated in cold may be afterwards propagated by contagion. It violates no established law of the animal œconomy. Experience on the other hand appears to favour it ; and it may therefore be laid down as an important practical principle, that fever which originated in the first instance from *common* causes, may, under certain circumstances either of local situation or constitution of body, spread by contagion. What these particular circumstances are, may be imagined from what has been already said. The principal of them are crowded and ill-ventilated apartments, want of cleanliness and comfort, a close and sultry state of the atmosphere, and previous weakness of the affected individual, whether owing to excessive fatigue, or an improper or scanty diet.

4. Many of the controverted points in the doctrine of contagion hinge upon this question, but there is another of almost equal importance involved in their decision. Sydenham long ago urged it with much force of argument, and a due attention to his observations might have prevented much of the controversy which has lately taken place on the subject of the plague and yellow fever. I mean that particular constitution of the atmosphere, which disposes to or which checks the *diffusion* of febrile contagions. A malignant contagious disease, when once it has got footing in a populous city or district, does not go on

to the destruction of all the inhabitants. Several circumstances contribute to this; first, peculiarities of constitution, which occasionally secure an individual completely from the influence of contagion; secondly, the immunity from future attacks, which in several instances of febrile contagious disease, is afforded by its having been once undergone. To this general law of contagion we shall have occasion to refer more particularly hereafter, when the eruptive fevers come under consideration, but for the present it may be stated that it applies, although with some exceptions, to that of typhus fever.

These two circumstances certainly contribute to explain the fact just mentioned, but they are not fully adequate to the effect. A certain constitution of the air therefore, sometimes favouring, but sometimes checking the diffusion of contagion, must be admitted as a third general principle upon which it depends. Some Physicians have pretended to find fault with this multiplication of causes for explaining a single phenomenon, and have argued that a peculiar, or as Sydenham says, an epidemic constitution of the air, is alone capable of explaining what others refer to the combined operation of it, and of the principle of contagion. As well might they argue, that the tree could be reared without a seed, because a peculiar condition of the soil is required for its reception and growth. Several of the most important facts in the histories of great epidemics, particularly the plague, will hereafter be illustrated by a reference to these fundamental doctrines in the laws of contagion.

5. Much speculation has taken place among medical authors, regarding the mode in which contagion produces its effect on the animal œconomy. It has been observed of a number of diseases notoriously arising from contagion, that they exhibit even from an early period, symptoms of great depression of nervous energy, or of *collapse*. This is exemplified in the case of plague, typhus, cynanche maligna, influenza, erysipelas, and it has hence been imagined, that there is in the nature of contagion something which is directly *sedative* or depressing to the nervous energy. A more extended view of disease would shew the fallacy of this as a general principle. Measles and Ophthalmia, which yet exhibit all the marks of genuine inflammatory *excitement*, are diseases as obviously arising from contagion, as plague or typhus. The operation of contagion may possibly be upon the brain and nerves, but its precise effect upon them is altogether inscrutable. Still while I offer a caution against assuming as a principle of pathology, any thing sedative in the nature of contagion, I am not insensible to the importance of the fact, that cases of disease arising from *common* contagion, above all continued fevers, are more likely to be of the low or typhoid kind, than such as are attributable to cold or other causes independent of contagion.

6. Of the intimate nature of the contagious particles which arise from morbid bodies, and which produce a like disease in others, we know nothing ;

but there are a few particulars concerning them which are known or conjectured, which it will be proper to notice.

Great attention has been paid by Dr. Haygarth and others, to determine the distance to which the noxious effluvia extend, and at which they operate in exciting disease. There is reason to believe that this varies in different cases, and that the plague, typhus, and small-pox, have, in this respect, each their respective laws. The subject however does not appear to have been yet investigated with sufficient accuracy, to enable us to lay down any established points of doctrine with regard to it. It is not for instance known, how far the sphere of contagious influence is affected by ventilation. In the case of continued fever, we are warranted in saying, that a free circulation of a pure and cool air renders the contagious particles comparatively inert, even if it does not altogether prevent their formation. Some physicians have extended their views farther, and have maintained that there are certain chemical substances which have the power of decomposing contagious effluvia, or at least, of rendering them, in some way or another, innoxious. Of these, the principal are acid vapours, particularly those of the nitric and acetic acids, and chlorine. *Fumigation* therefore has been recommended as a powerful means of counteracting contagion. The theory upon which it has been introduced is exceedingly doubtful, and the practice far from being generally applicable, acid vapours of all kinds being more or less injurious

to breathing. If fumigation is adopted as a substitute for thorough ventilation, it may prove injurious; if only superadded, it is perhaps superfluous; but on a point of such *practical* importance it is right to speak with much caution.

The next subject of enquiry which the general doctrine of contagion offers, is the attachment of contagious particles to certain bodies, thence called *Fomites*, where they may lurk for a very long period of time, and subsequently renew the disease with all its former, or even an increased virulence. It is the most curious fact in the history of contagion, and one established upon the most unquestionable evidence. The principle appears to be of more general application than any other which the doctrine of contagion involves. The plague and typhus, small-pox and scarlet fever, ophthalmia and porrigo, afford the most familiar illustrations of it, but it is doubtful if there is any species of contagious disease, which may not be communicated through the medium of fomites. They may be either hard or soft bodies. The walls and wainscoting of the room, the bed and bed-furniture, the furniture of the room, and the clothes of the patient, are those against which we are chiefly to be on our guard. It is well ascertained that the clothes of an individual, who is himself unsusceptible of the disease, may become the fomites of its contagion. In this manner typhus, small-pox, and plague, are not unfrequently disseminated.

Attempts have been made to ascertain the period of

different diseases, at which their contagion is the most active, and that at which the body ceases to afford contagious matter. This point it would be of much importance to determine, as it would indicate when a patient might safely be permitted to mix in society, but unfortunately there do not appear to be sufficient data to enable us to decide the question with any degree of accuracy.

Such are the most important topics which the general doctrine of contagion embraces. They are brought forward in this place, because contagion, as a cause of continued fever, demanded particular notice. It remains however for me to state, that besides those exciting causes of continued fever which have now been mentioned, there are some others to which this state of disease has been attributed, which, at least, deserve to be enumerated. Of these the first is a vitiated state of the air, in consequence of the accumulation of persons in a confined space. The second is the putrefaction of animal and vegetable matters. The third is a state of famine, or scarcity. The prevalence of fever at particular periods has been often attributed to one or other of these sources, and many occurrences in history favour the opinion. That they powerfully contribute to the diffusion of fever when once generated, cannot be questioned; but they have all been so frequently observed to exist without fever ensuing, that their power of *exciting* this state of disease must still be considered among the doubtful points in medical science.

The judgement of the physician regarding the pro-

bable course, duration, and termination of any particular case of disease is called the *prognosis*, and the general principles by which it is regulated apply, to a certain extent, to all diseases.

1. There is, in the first place, a *general prognosis* founded on an extensive view of disease, which enables us to give an opinion regarding the probable course of a particular case, without any minute attention to symptoms. Thus, we can confidently predict, that a case of catarrh, or sore throat, will end favourably, that a case of acute rheumatism will prove tedious, a case of croup hazardous, of consumption hopeless. In treating of particular diseases, some allusion to general prognosis will always be made.

2. There is a prognosis applicable only to individual cases, and this is to be regulated by an attention to a number of minute circumstances, in detecting which, and estimating their relative importance, the skill of the physician is eminently displayed. This part of his duty can be but imperfectly taught in books. It is generally said to be guided by the presence or absence of certain *symptoms*, which are set down under the heads of *favourable* and *unfavourable* symptoms. These have been collected together with great industry by various authors, but they are of very little importance in actual practice, where the prognosis is, for the most part, determined by several far higher considerations. Of these, it will be found that one of the most generally applicable is the period of the disease at which the symptoms occur,

To be able to draw legitimate conclusions therefore with reference to prognosis, from the observation of a particular symptom, it is necessary to be well acquainted with the usual train in which the phenomena of the disease manifest themselves, and the causes upon which each depends. It is impossible indeed to define, with any accuracy, the principles of prognosis in disease. The age and habits of the patient, the circumstances in which he is placed, and the period of the disorder already elapsed, have a great and obvious influence upon the effectual application of the necessary means of relief. They must all, therefore, be taken into consideration in determining the prognosis; but they are too indefinite for general investigation.

The symptoms which denote danger in continued fever are those, first, of excessive inflammatory excitement; secondly, of topical congestion; and thirdly, of great depression, or irregular action of the nervous power. Among the latter are included those which the older writers were in the habit of designating as the symptoms of *putrescency*, a state of body, the notion of which has been, in later times, the frequent subject of dispute. That the powers of the living body, in checking the putrescent tendency of all animal matter, should be diminished in certain states of disease, does not, however, appear to be an unreasonable supposition. The following may be enumerated as the chief symptoms which mark the putrescent diathesis. A loose or very imperfect coagulation of the blood—fætor of the evacuations—a

squalid appearance of the skin, and a cadaverous odour of the body—hæmorrhages from the mouth, nose, stomach, rectum or urethra, the blood being of a very loose texture, and quickly putrefying—petechiæ and vibices—a disposition to gangrene in the skin, wherever it has been accidentally wounded, or abraded, or exposed to long pressure—the speedy putrefaction of the body after death. It would be necessary to clear up many of the difficulties in which the doctrine of the coagulation of blood is involved, before we could arrive at a satisfactory explanation of these phenomena; but in the mean time there are sufficient grounds for believing, that they depend, in a great measure, on the deranged functions of the brain.

A variety of symptoms are mentioned by writers on continued fever, which are stated to be favourable; such as deafness, diarrhœa, and the formation of abscesses. Upon the latter much stress has been laid. They have been considered as *critical* discharges, that is to say, as serving to carry off noxious humours generated during the fever. This point of doctrine we do not now insist upon; and upon the whole it may be remarked, that there is no single symptom occurring in the course of fever, which can be set down as decidedly favourable; but that the probability of recovery must always be estimated by the general character of the symptoms, when viewed in connexion with each other.

The general prognosis in continued fever is certainly favourable. Under proper management a

large proportion of cases recover. This is a point which has been made an object of enquiry by different writers, and a very curious coincidence has been traced in the extent of mortality occasioned by continued fever, under circumstances considerably different.* The average of deaths in the hospitals of this country appears to be in the ratio of about one to twelve, which is believed to be considerably *below* the ordinary scale of the mortality of fever, when it occurs in private habitations, even with access to medical assistance. It varies of course with the general character of the epidemic, the period of the disease at which it is first submitted to medical treatment, and many other circumstances of nearly equal importance, the influence of which has been already adverted to.

* Consult Bateman's "Succinct Account of the Contagious Fever of this Country."—London, 1818. Page 75.

CHAP. IV.

TREATMENT OF CONTINUED FEVER.

*Necessity of Treatment in Fever—Indications of Cure—
The antiphlogistic Regimen—Possibility of cutting short
a Fever.—Remarks on the different means resorted to in
the treatment of continued Fever—The Abstraction of
Blood—Cold affusion—Emetics—Saline and Antimo-
nial Medicines — Purgatives — Cordials — Bark —
Opiates—Blisters.*

IT is well remarked by Dr. Cullen, that though in every fever which runs its full course, there is an effort of nature of a salutary tendency, and though from hence it might be inferred that the cure of fevers should be left to the operations of nature, or that our art should be directed only to support and regulate them, it yet requires but a moderate share of observation to understand that these are very precarious, and often wholly insufficient to overcome the disease. Permanent derangement of the function or structure of an organ is sometimes occasioned before such operations are set up, and trusting to them therefore often leads to negligent and inert practice. The necessity of treatment in fever is now indeed generally acknowledged. Occasionally, the natural tendency of fever to terminate favourably may be kept

in view with great advantage ; as, for instance, in the latter stages of *simple fever*, where measures of depletion are unnecessary, and wine and cordials would be doubtful remedies. In a large proportion of cases however the operations of nature may be superseded by the well directed exertions of art. To point out what these are, to what extent they may be carried, and how they must be varied to meet the varying forms in which fever presents itself, is my object in the present chapter. It is to be regretted that the nature of the subject is such, as to render it impossible to lay down any specific directions for the guidance of the student, as we may hereafter be able to do, when explaining the treatment proper in pneumonia, colic, or jaundice. All that can here be done is to notice the principal means that are resorted to in the cure of fever, and to add such observations as may throw light on the objects for which they are had recourse to, and point out the necessary cautions in their administration. In no disease is so much left to the discretion of the practitioner, as in continued fever.

The general objects to be kept in view in the treatment of any disease are called, in medical language, the *indications of cure*. In the case of fever they have, for the most part, been drawn from the hypothetical views of authors regarding the nature and proximate cause of fever ; but such indications of cure are little calculated to direct us in the choice and application of remedies. The view which has been here taken of the varieties of continued fever, and of

the circumstances which modify its symptoms, suggest the following as the simplest indications of cure in fever :—

1st. To moderate the violence of arterial excitement.

2d. To obviate local inflammations and congestions.

3d. To support the tone of the system.

4th. To relieve urgent symptoms.

An important step towards the attainment of all these objects is a strict attention to the ANTIPHLOGISTIC REGIMEN, under which term physicians include a great variety of details proper to be observed, not only in continued fevers, but in all febrile affections whatever. This regimen is of itself sufficient to cure a number of the slighter kinds of febrile disease, such as catarrh, and sore throat. It consists in avoiding or moderating those irritations, which in one degree or another are almost constantly applied to the body. Dr. Cullen has divided them into three classes :—impressions made upon our senses ;—the exercise of the body and mind ;—the taking in of aliments. In all fevers therefore, care is to be taken to guard against external heat, and such impressions upon the eye and ear, as would prove painful to the patient, and aggravate the symptoms of his disease. The popular prejudice against the admission of fresh air, the use of

cold washing, and the frequent changes of linen and bed clothes in cases of fever, is now gradually giving way ; but for a great length of time it exerted a most pernicious influence over the treatment of fever. All exertions of body and mind are to be forbidden. The horizontal posture is to be enforced. The presence of aliment proving always a stimulus to the system, abstinence is to be recommended, particularly from animal food in the shape of broths and jellies, which are too often had recourse to in the early stages of fever. They load the stomach, increase the disposition to nausea and vomiting, accelerate the pulse, augment the heat of the skin, and occasion headache, flatus, tormina, and many other unpleasant symptoms. The utmost cleanliness is to be observed in the patient's person, and in every thing around him. His thirst is to be allayed by light, subacid, and *cool* drink.*

Before proceeding to the detail of the other measures which are resorted to in the treatment of continued fever, it is necessary to enquire, how far it is possible, by a vigorous employment of measures in the early stages of fever, to cut it short. The question has been much agitated, and there are many authors who contend, that it can be frequently

* The prejudice against allowing cool drink in fever is hardly yet rooted out from the minds of medical practitioners. Boerhaave was a zealous supporter of cool air, but he advises the drink in fever to be bland and *warm*: and his commentator Vanswieten occupies a quarto page in reconciling the apparent inconsistency of recommending in the same paragraph, cold air and warm drink.

effected. It may fairly be admitted, that there are mild attacks of fever, particularly [occurring in young persons, where a prompt evacuation appears to have the effect of interrupting that chain of morbid actions, which ends in the full development of fever; but it may reasonably be doubted, whether any of the severer cases of continued fever, (those for instance, either arising from contagion, or from common causes, which extend to 14 or 21 days,) could have been *cut short* by any exertion of art. Were it possible to do so in a few cases, it should yet be borne in mind, that active treatment in the majority of cases of continued fever, even though early resorted to, is chiefly serviceable, not in shortening the course, but in moderating the *violence* of the disease.

Of the different means of fulfilling the indications of cure formerly laid down, the most powerful is the *abstraction of blood*. Every part of the treatment of fever has been the subject of controversy, but the employment of blood-letting is that, which of all others has been the most keenly disputed. As it is however of the greatest importance to have clear ideas regarding it, I shall make an attempt to estimate the utility of blood-letting in fever, and to point out the circumstances under which it may be proper to employ it.

There cannot exist a doubt as to the necessity of blood-letting in the genuine inflammatory fever, the *endemic* of hot climates. The violence of that dis-

ease, the rapidity of its progress, and the high degree of arterial excitement which characterize it, call for the adoption of a system of measures, at once powerful and immediate in their effects. On the first attack, therefore, blood is to be taken from the arm to the extent of twenty or thirty ounces, and in a full stream. This it is frequently necessary to repeat in the course of a few hours, the extent of the evacuation being always regulated by the violence of the symptoms, particularly by the degree of head-ache, and the fulness of the pulse. These must be diminished without delay, and though other means are not to be neglected, it is upon venesection that our chief reliance is to be placed. Some have urged opening the temporal artery in preference to bleeding at the arm, but without sufficient reason; and here it may once for all be said, that opening the temporal artery is not an operation to be recommended, except under particular circumstances. It often fails, even when practised by skilful hands. The requisite quantity of blood cannot always be obtained speedily, or estimated accurately. There is, lastly, often considerable difficulty in securing the artery, nor does it appear that there is any peculiar benefit resulting from the operation to counterbalance these obvious disadvantages.

Common continued and typhus fever do not necessarily require the adoption of blood-letting. A large proportion of cases, especially of the latter, would be hurt by it, and in many, to say the least, it is un-called for. But on the other hand, there are some,

and those among the most formidable which fall under our observation, which as imperiously require it.

The objects for which blood-letting is instituted in the common continued fevers of this country, and in genuine typhus, are various. Some recommend it very early in the disease, in the hope of cutting it short at once. This is a fortunate result of the practice occasionally witnessed; but it is one which can seldom be anticipated. The legitimate object of blood-letting in these diseases, is the checking those dispositions to inflammatory action which are so often met with in severe cases, which sometimes come on insidiously, and at other times suddenly, and are productive in either way of serious mischief to the affected organ. This applies with peculiar force to those conditions of the brain which are supposed to depend on congestion or *sub-acute* inflammation; for the delicacy of its structure exposes it readily to injury, and injury of the brain, even of the slightest kind, is always to be dreaded. It is frequently observed, that a judicious abstraction of blood in the early stages of fever not only diminishes the head-ache, the great sensibility to light and sound, the delirium, or the cough, or the pain and fulness of the abdomen, but it apparently shortens the course of the disease, and more obviously still, the period of convalescence.

It is at the onset of the fever, that is to say, between the first and fourth day, when the good effects of blood-letting are most unequivocally exhibited.

At this period of the disease the powers of life may be *oppressed*, but it is not probable that they are much *exhausted*. From this they will recoil, if the oppressive load of the disease be quickly removed.* But blood-letting may sometimes be resorted to with the best effect at more advanced periods of the disease. Great nicety indeed is required in distinguishing the symptoms that demand it, and in apportioning the evacuation to the extent of local disease, and the general powers of the constitution. Delirium in particular is a symptom which may sometimes be alleviated by a small bleeding, (as for instance, to six ounces) even at an advanced period of the disease; but for the most part, it will be found preferable to employ *local blood-letting*, when the object in view is the relief of an urgent symptom. Of the comparative advantages resulting from general and local bleeding, in the continued fevers of this country, it is difficult to speak with precision. I have frequently had occasion to see affections of the head, in fever, yield speedily to the application of leeches, where general bleeding appeared only to weaken the body, without influencing the local affection. Leeches I believe to be, upon the whole, preferable to the application of cupping glasses, as occasioning less irritation.

The appearance of the blood drawn in cases of

* See Bateman on "the Contagious Fever of this country," page 102, a work containing a most judicious exposition of the principles and details of the treatment of continued fever, upon which it would be difficult to improve.

continued fever varies considerably. To a certain extent, it may serve as a guide to us, in indicating the propriety of further depletion. It is sometimes buffy, and the coagulum firm; but in genuine typhus the coagulum is commonly loose, an appearance supposed to contraindicate the employment of bleeding. In a case of great oppression of the brain however, amounting almost to apoplexy, but connected with the *invasion* of fever, I once saw the most marked good effect from general blood-letting, and yet the blood drawn scarcely coagulated at all.

Cold affusion, upon which great reliance was at one time placed in the treatment of fever, is attended with so much inconvenience and fatigue to the patient, that in this climate it is now very generally superseded by the employment of cold or tepid sponging. From this, in most cases, much benefit is derived: it is grateful to the patient, it diminishes the heat of the body, takes off that dryness of the skin which occasions so much irritation, and it is sometimes succeeded by a quiet slumber, and a gentle perspiration. It may be repeated whenever the skin is *hot and dry*, and it is often useful even at very advanced periods of the disease. In those exquisite forms of inflammatory fever which are met with in hot climates, the cold affusion, in the manner recommended by the late Dr. Currie, is a powerful means of diminishing the high excitement that prevails. We may form some idea of this, from the well marked effects of the local application of cold in diminishing the head-ache, delirium, and restlessness of the common continued fever of this country.

When the opportunity offers of administering remedies in the first days of the fever, an emetic should never be omitted. The draught N^o. 1, in the Appendix, may be recommended for this purpose. Besides clearing the stomach, an emetic seems to possess some power of determining the blood to the surface, and in this way relieving the oppression of the internal organs. Saline medicines, such as nitre, and the acetate of ammonia, according to the forms N^{os}. 2, and 3, are very useful throughout the early and middle periods of the disease. They allay thirst, and appear to exert some influence in controuling the action of the heart and arteries. They should constitute the basis of our treatment in most cases; and in the milder forms of *simple* fever, little else is required.

Antimony was long distinguished as a *febrifuge* of great virtue, but latterly an opinion has prevailed, that its efficacy in the treatment of fever is rather a matter of tradition than the dictate of experience. To this I cannot subscribe, having had frequent opportunities of satisfying myself of its claims upon our confidence. It occasionally acts upon the stomach and bowels, but independent of this, antimony proves useful in fever, apparently by some power of diffusing and equalizing the circulation. The oxyd, as we find it in the *pulvis antimonialis* of the London Pharmacopœia, is I believe the best form in which it can be administered. In combination with small doses of calomel, (R N^o. 4.) given either at night, or every six hours, according to the urgency of the symptoms,

its efficacy is manifested in that improved appearance of the tongue and alvine evacuations, which frequently results.

No doubt can be entertained respecting the propriety of exhibiting purgative medicines during the whole course of continued fever. For this purpose, the draught (N°. 5.) may be recommended. Combinations of jalap or rhubarb with calomel, as in the form (N°. 6.) are well adapted for the commencement of fevers.*

The great weakness which prevails in fever naturally led to the employment of cordial and tonic medicines, more particularly wine, ether, camphor, musk, bark and aromatics; but it is now generally acknowledged, that the indiscriminate use of stimulant remedies in fever is highly pernicious; that they have a tendency to aggravate many of those local determinations, from which danger is chiefly to be apprehended; and therefore, that their employment is to be regulated by circumstances, no less than that of blood-letting. The period of the disease, the particular situation in which it appears, its exciting cause, the age, constitution, and former habits of the patient, are of course to be taken into account; but we are chiefly to be guided by the

* See "Observations on the utility and administration of Purgative Medicines in several diseases," by Dr. James Hamilton; a work of great merit.

character of the symptoms, and the effects of the remedies.

In the state of true collapse, marked by cold and clammy sweats, a feeble wavering pulse, oppressive breathing, the supine posture of the patient, and the moist, brown and loaded state of the tongue, stimulants, especially wine or brandy, are not only beneficial, but absolutely necessary. Such symptoms are clearly indicative of a failure of the powers of life, and unless stimulants are duly supplied in quantities proportioned to the exigencies of the case, the patient rapidly sinks. Those cases of typhus which are accompanied by petechiæ, or the large livid blotches called vibices, in short, by what we have denominated the symptoms of putrescency, are benefited by the steady and moderate exhibition of wine, bark, and aromatics. There is a third class of symptoms which has been supposed to indicate the propriety of a similar plan of treatment; I mean those which denote irregularity in the action of the nervous power, such for instance as subsultus tendinum, picking of the bed-clothes, and a tremulous tongue. These are distinctly symptomatic of cerebral irritation, of a state which is indeed sometimes relieved, but not unfrequently aggravated by wine and bark. If these symptoms are present along with a parched tongue, a hot and dry skin, and any degree of *sharpness* of the pulse, wine even in small quantity is generally hurtful. It is a state which may often be better combated by local bleeding, blistering, and

laxatives. Wine is indeed at most times a doubtful remedy in fever, which should never be persevered in, unless the signs of improvement are very unequivocal.

The effects of all stimulant remedies are to be carefully watched. Even when most essentially required, as in the lowest state of collapse, they will sometimes occasion a degree of excitement, from which danger may be apprehended. If the tongue under their exhibition becomes dry, and delirium increases, they should be immediately diminished, or altogether withdrawn. If the patient is upon the whole improving, this should satisfy us. Any attempt to accelerate his recovery by increasing the quantity of wine, will only risk his safety.

From the want of sleep and restlessness which so generally prevail in fever, and which are so distressing to the patient, opiates might be expected to be useful, but experience tells us otherwise. In the early stages of the disease they are quite inadmissible, and even in the latter, their employment is often followed by an aggravation instead of a relief of the symptoms. Besides this, opium frequently augments the heat and thirst, constipates the bowels, and increases delirium. In some few cases indeed an opiate at bed time, as in the form (N^o. 7.) is adviseable; as for instance, when after purging and local bleeding, great restlessness continues, attended with a low muttering delirium, aggravated towards night. If on

the following morning the tongue appears dry and smooth, the opiate was probably injurious ; if moist, it may safely be repeated.

In particular states of fever, the efficacy of blisters has been long acknowledged, and several different explanations of the fact have been offered. They have been supposed to act as stimulants, or to have a power of relieving spasm, and they have accordingly been recommended by some at any period of continued fever. By others they have been principally resorted to in the latter stages of the disease. Their good effects have been traced to a principle of *revulsion*, and they have been chiefly applied by such practitioners to the calves of the legs, and the soles of the feet. It is now however generally agreed, that blisters are only useful in obviating those local congestions and inflammations which occur in the course of fever, and more particularly within the head, bringing on that state of cerebral irritation which is marked, sometimes by delirium accompanied with much restlessness and attempts to get out of bed, and occasionally by the opposite, but no less formidable symptom of *stupor*. Under these circumstances, great benefit is experienced from the application of a blister to the nape of the neck ; besides which the head should be shaved, and cloths dipped in a cold lotion constantly applied to it. In cases of local determination to any organ of the thorax or abdomen, a blister over the affected part will prove equally advantageous.

In the progress of continued fever, some symptoms occasionally arise which from their urgency demand particular attention, but for the management of these no specific directions can be given. During the convalescence, the diet of the patient must be strictly regulated; but in the way of medicine, little else is required than an occasional laxative, or the exhibition of a light tonic, such as the infusion of cascarrilla, bark, or calumba.

CHAP. V.

OF THE PLAGUE.

Its nosological character——origin and history——symptoms of the Plague——mild form of Plague——effects of different Remedies——of the Contagion of Plague——its peculiarities——circumstances tending to render the Plague epidemic.

THE PLAGUE, classed by Dr. Cullen among the exanthemata, is yet in strict nosological language a continued fever closely allied to typhus, and therefore demanding notice more particularly in this place. It may be viewed indeed, without over-refinement, as the link which connects these two great classes of idiopathic fevers. In its mode of propagation, it resembles the exanthemata. In its symptoms and progress, we shall trace an obvious resemblance to those of typhus.

The historical details connected with this very singular disease are highly interesting. The ancients do not appear to have been acquainted with it, but it must be confessed that its origin and early history are involved in much obscurity. For many centuries past it has been *endemic* on the shores of the Mediterranean, and though it has occasionally shewn itself in other latitudes, as at Moscow in 1771, and in this country in 1665, yet in that situation only is it at all

times to be met with. Grand Cairo may be considered as the great *nidus* of the contagion of plague, and from this point, at particular seasons, it spreads with a malignity scarcely to be estimated. The interest with which such a disease must at all times be viewed, has been much heightened of late years from the circumstance of its having appeared in our own settlements, (in 1813 at Malta, in 1816 in the Ionian Islands,) and been subjected there and in Egypt to the observations of our own countrymen. The symptoms of this disease, the peculiarities in the laws of the contagion of the plague, and the circumstances which appear to favour its diffusion, and the consequent appearance of the disease as an *epidemic*, are the points to which my attention will in this chapter be principally directed.

A feeling of great languor and lassitude usher in the attack of plague, which for the most part happens towards evening. There is always a cold stage, though it is seldom of long duration. Heat of skin, head-ache and giddiness succeed. The pain of the head is referred to the temples and eye-brows. The eyes appear heavy, dull and muddy. The expression of countenance changes in a remarkable manner. Sometimes there is a wild and furious look; sometimes a look claiming commiseration, with a sunk eye and contracted feature. The most striking of all the early symptoms of plague is the *staggering*, and the sudden extreme prostration of strength. A strong tendency to void the urine is generally noticed. The stomach is very irritable, and rejects almost

every thing presented to it. The tongue is white and moist. The bowels are sometimes torpid, and at other times loose, the evacuations being always highly offensive. The speech falters. The pulse is at first small, hard, and quick ; but after the appearance of buboes it often becomes fuller and softer. It is sometimes intermittent. In point of frequency, its average may be stated at 100. The heat of skin is seldom very intense. The head is occasionally perfectly clear and collected. At other times, stupor occurs immediately after the formation of the hot fit. Some cases of the disease are ushered in by a violent fit of mania. The greatest indifference with regard to recovery prevails, and is always reckoned a most unfavourable symptom.

After one, two, or at furthest three days, pains in the groins and axillæ announce the formation of *buboes*. These pains are often highly acute, and unless speedily followed by the swelling of the gland, the patient dies delirious. In women the axillæ, in men the groins are chiefly affected * Carbuncles appear at the same time, but indifferently on all parts of the body. Petechiæ and vibices are much more frequent than carbuncles, which it appears do not occur above once in twenty cases. The fatal termination is sometimes preceded by violent hæmorrhages from the mouth, nose, or intestines.

* This detail of the symptoms of Plague is abstracted, by permission of Sir J. Macgrigor, from the official reports of the epidemic of 1816, transmitted to the Army Medical Board by the officers in charge of the Plague Hospitals in the Ionian Islands.

The duration of the disease is very various. A few cases are on record, where the patient died within a few hours from the invasion. To many it proves fatal during the first paroxysm or period, which includes the time from the evening of the attack to the close of the following night. The third and fifth days are however, upon the whole, those of the greatest danger. The former is the usual period of the appearance of bubo; the latter, of the abatement of the febrile symptoms. If the patient survives the fifth day, and the bubo is fully formed, he may be considered as nearly out of danger. The convalescence indeed is always very tedious, from the extreme debility which the disease leaves; and the patient's life is not unfrequently again put into imminent hazard from the occurrence of gangrene in the extremities.

Such is the train of symptoms which characterizes this disease. To form some idea of the extent of the mortality which it occasions, I may mention that out of 700 persons attacked by it in the district of Leftimo in Corfu in 1815, seventy were saved and 630 died. It is curious however to observe, that occasionally this very formidable disease assumes a totally different character. The mild form of plague is not peculiar to any families, or classes of persons, or districts, or periods of the epidemic. It is more commonly met with towards its decline, but it is observed occasionally even from the very first. Buboes form in this variety of the disease about the usual period, generally with a good deal of inflammation,

and go on to suppuration. Carbuncles and petechiæ however are never observed to attend it. It is marked by the same set of febrile symptoms as characterize the malignant form of the disease, but they are all milder in degree. It terminates occasionally by a critical discharge, but does not appear to require, or to be at all affected by any kind of medical treatment. A few cases have been recorded of plague appearing in the form of buboes, without any constitutional affection.

A circumstance of some importance, as tending to point out the analogy between the plague and other forms of continued fever, has been taken notice of by Sir James M'Grigor, in his Medical Sketches of the Expedition from India to Egypt:—I mean the effect of season, ventilation, and peculiarities of soil in modifying the character of the symptoms. The cases of plague which occurred in the cold months of the year, were marked by an inflammatory diathesis. Those which were sent in from crowded hospitals, were attended from the very first, with low or malignant symptoms. Those which occurred when the army was encamped near the marshes of El-Hammed shewed a kind of remittent or intermittent type.

Some dissections have been made of the bodies of persons who have died of the plague, but they afford little or no instruction. The few morbid appearances noticed, were met with in the cavity of the abdomen.

In the malignant form of plague, every variety of

treatment has been tried, but with so little effect, that it may be considered as a disease nearly beyond the reach of medicine. The violent head-ache which occurs during the first twenty-four hours, seems to point out the propriety of blood-letting, and it is recommended by the general custom of Turkish practitioners; but in the hands of English Surgeons it proved of no avail. In the cases in which it was tried, it did not appear however to make matters worse. The blood first drawn was generally sizy, but never afterwards.

Where mercury can be brought to affect the mouth, it appears to be of some service, but it is seldom that sufficient time is afforded for this specific effect of the remedy. Ether and laudanum are valuable medicines in allaying the irritability of the stomach. Wine and opium are of no use during the violence of the disease, and bark can seldom be retained. This is much to be regretted, for wherever it can be made to stay on the stomach, even in those severe cases where carbuncles and vibices appear, its good effects are conspicuous. Camphor, bark, and wine are given with much advantage during the period of convalescence. Emetics, purgatives, and the cold affusion have been tried, but it does not appear that they are of any particular service. Diaphoresis can seldom be produced, owing to the disposition to vomit, but where ever it can be procured, the symptoms seem to be mitigated by it.

Great attention is always paid to the local treatment

of the buboes. They seldom go back, and it is usual, therefore, to employ means with the view of accelerating their suppuration. For this purpose the Turks are in the habit of applying the actual cautery, but it did not answer in the practice of our army surgeons. The irritation occasioned by it was excessive, so as sometimes to hasten the patient's death. Blisters and poultices are certainly preferable, but, upon the whole, it is quite obvious, that as little can be done in the way of surgical treatment in the plague, as by internal medicines.

The general resemblance which plague bears to those malignant forms of typhus fever, which are occasionally witnessed in cold countries, must be abundantly obvious. The great distinction between them lies in the occurrence of buboes; in other words, in the tendency which plague has to affect the lymphatic system. This line of distinction however is so broad, that plague is to be viewed as a continued fever, allied indeed to typhus, but differing from it in the important circumstance of having its origin in *specific* contagion. That the plague is a highly contagious disease cannot for a moment be made a matter of dispute; but some physicians have maintained that it is not a fever *sui generis*, generated by a specific contagion, but only an aggravated form of typhus, in support of which opinion it has been argued, that cases of typhus complicated with buboes have sometimes been observed in this country.* This idea,

* See Minutes of Evidence taken before the House of Commons on the Question of Plague. 1819.

however, is entertained only by a few, and the doctrine of a specific contagion in plague is that which is now generally received. Its laws have been investigated with some accuracy, and the following seem to be the most important of those which have hitherto been ascertained.

1. The *latent period* of the contagion of plague, or that between communication with an affected individual, and the appearance of symptoms, varies in different cases. It is scarcely ever less than three days, and it seldom exceeds six. Instances are recorded of the disease not appearing until the tenth day, but these cases are rare.

2. The contagion spreads to a very small distance only from the body of the patient. The consequence of which is, that the disease is seldom if ever communicated, except by actual *contact*.

3. The dead body does not communicate the disease so readily as the living. This, I understand, is well known in Turkey, but that the contagion is sometimes received from the dead body, cannot, I apprehend, be doubted.

4. The contagion of plague is readily imparted to *fomites*, in which it may lurk for a very long time, more particularly if secluded from the air.

5. Re-infection is occasionally observed, but, upon the whole, it is not common. The individuals through-

out Turkey, who are employed about the persons of plague patients, have, with very few exceptions, undergone the disease. Sufficient instances, however, are met with of persons taking the disease a second time, and even dying of the second attack, to make all who have previously had it, cautious in their intercourse with the affected,

6. Plague, like the small-pox, may be taken by inoculation. The experiment has been tried in several instances, but in none has it succeeded in mitigating the disease. Dr. Whyte in 1801, and Mr. Van Rosenfeldt in 1817, paid the forfeit of their temerity with their lives. The former died on the fourth, the latter on the second day of the disease.

Plague I have stated to be endemic in Egypt; and both at Cairo and Constantinople cases of the disease are almost always to be met with. In other words, they occur sporadically in those places. While the English army was in Egypt in 1801, cases of plague were continually occurring, but the judicious regulations which were adopted, prevented the disease from spreading, and the troops suffered but very little from it. At Malta however in 1813, and in the Ionian Islands, during the years 1815-16, the plague raged epidemically; and from very early times it has been observed, that at particular seasons the plague disseminates itself with extraordinary malignity. To this nothing can give any effectual check but the enforcement of severe measures by the strong arm of military power. At Marseilles in 1720, at Messina

in 1743, at Grand Cairo in 1759, and on various other occasions, when the plague was suffered to advance without any such controul, the ravages which it committed were of incalculable magnitude. The rigid seclusion of families, the immediate removal of all suspected cases to quarantine, and of all decided cases to the lazaret, are the preventive measures of most obvious importance.

Many enquiries have been instituted with the view of determining, if possible, what the circumstances are which render the plague epidemic at certain seasons. Some particular constitution of the air is generally supposed to occasion it, but what that is never has been, and probably never will be ascertained. The extremes both of heat and cold are said to be unfavourable to the propagation of plague, but this opinion must be taken with some limitations. The plague raged in summer at Malta, in the winter months at Corfu. Nor is it clear that it is upon any peculiar state of dryness or moisture in the atmosphere that the phenomenon depends, though indeed there is a popular belief all over the Levant, that the heavy dews which begin to fall about St. John's day check the advance of the plague. To this circumstance is attributed the curious but well ascertained fact, that though the disease had been previously raging in the town, the inhabitants may after that day leave their homes and mix in society with comparative security.

It is a common remark in the Levant, that the

advances of the plague are always from South to North. When the plague is at Smyrna, the inhabitants of Aleppo handle goods without precaution, and have no fears of contagion. When the disease, on the other hand, is at Damascus, great precautions are observed, and all the Frank families hold themselves in readiness to *shut up*, or to leave the town. An epidemic plague, therefore, nearly always begins at Grand Cairo, spreads to Alexandria, and from thence through Syria to Smyrna and Constantinople.

The seeds of the plague being always present in Turkey, if it were not for these peculiarities in the laws of its contagion, that country must have been long since depopulated. Whether the genuine Levant plague could spread in this climate, is a point upon which physicians are not agreed. The general opinion is, that it might so spread under particular circumstances, and therefore, that the quarantine regulations established by the Legislature are absolutely necessary for the protection of these countries.

CHAP. VI.

INTERMITTENT AND REMITTENT FEVERS.

Train of symptoms in the paroxysm of an Intermittent—Primary types of Ague—of the Remittent Fever—Consequences of Ague—Prognosis—Causes of Ague, predisposing, and occasional—of Marsh Miasmata—Treatment of Intermittent Fevers—during the paroxysm—during the interval—Bark—Arsenic—Treatment of the Remittent Fever of Warm Climates.

INTERMITTENTS are readily distinguished from every other form of idiopathic fever from their occurring in paroxysms, each of which may be considered as an epitome of a febrile disease, exhibiting in the course of about eight hours all the stages of fever—its rise, progress, crisis, and termination in the recovery of health. This circumstance has contributed to give to intermittent fever a large share of the attention of pathologists. By an accurate investigation of its phenomena, they have endeavoured to arrive at a knowledge of the nature of febrile action, and have imagined they could apply to the more varied appearances of other diseases, those general views which the consideration of agues suggested. Distrusting in some measure this principle I com-

menced the enquiry by a sketch of the more frequent, and, in this country at least, far more important subject of continued fever.

The symptoms which occur in the paroxysms of an intermittent fever divide themselves obviously into the *cold*, the *hot*, and the *sweating* stages, in the course of which, those changes happen in the state of the several functions of the body, which have been already, in part, alluded to. The hot stage is usually attended with nausea and vomiting, scanty and high coloured urine, a hurried breathing, considerable head-ache, throbbing of the temples, confusion of thought, or even delirium. A moisture at length breaks out on the face and neck, which gradually extends over the whole body, and the febrile symptoms then rapidly diminish. The pulse sinks to its natural standard ; the feeling of weakness goes off ; the heat of skin, head-ache, and thirst abate ; the appetite returns ; the secretions are restored to their healthy condition, the urine depositing a *lateritious* sediment. There is considerable variety in the duration of the paroxysm. It is, upon an average, about six or eight hours.

After a certain interval the same train of symptoms is renewed, and the period of their recurrence gives what is called the *type* of the fever. From very early times three primary types of intermittent have been observed—the QUOTIDIAN, the TERTIAN, and the QUARTAN, in which the febrile paroxysm completes its revolution in the respective periods of twenty-

four, forty-eight, and seventy-two hours. Of these the most common is the tertian. Several irregular types of intermittent fever have been taken notice of by authors, such as the double tertian, the semi-tertian, and the double quartan, but they are not of frequent occurrence. There is only one other form of the disease, which it is necessary to mention here. Under certain circumstances, the febrile symptoms, instead of ceasing entirely in the interval between the paroxysms, abate only to a greater or less degree, and this constitutes the *remittent* type of fever.

In the course of the disease it is frequently observed that the type changes, tertians and quartans into quotidians, quotidians into remittents. Under more favourable circumstances the remittent shews the character of an intermittent ; and, generally speaking, the change into a type of less frequent repetition indicates an abatement in the severity of the disease. Physicians have remarked that the tertian type of fever has its invasion in the forenoon, the quartan in the afternoon, and the quotidian in the morning. The quartan, which has the longest interval, has the longest and most violent cold stage, but upon the whole the shortest paroxysm. The hot fit of the tertian is comparatively the longest. The quotidian, with the shortest interval, has, at the same time, the longest paroxysm.

Upon what particular circumstances the type of intermittent fever depends, has never been ascertained, but that climate and season have great influence over

it, and also over the general character of the symptoms, cannot be disputed. Vernal agues generally assume the tertian type, and are marked by an inflammatory diathesis. They are however mild, and usually run their course quickly. Quartan agues prevail chiefly during the autumn and winter months, and they are the most obstinate of all the forms of intermittent fever. Great as is the influence of season, it is yet inferior to that of climate. The remittent type occurs almost exclusively in hot countries; but to form an adequate idea of the extent to which the symptoms of ague can be modified by climate, it is necessary to consult the works of Dr. Cleghorn and Dr. Lind,* authors of the highest repute on the subject of intermittent and remittent fever.

An ague sometimes continues, particularly in cold climates, to affect the body for a very long period, without producing any permanent derangement of function or structure, but this is a very rare occurrence in hot countries. There the continuance of ague induces inflammatory affections of the thoracic or abdominal viscera, dysentery, cholera, dyspepsia, or chronic *obstructions* of the liver and spleen. The tendency of ague to produce an enlarged state of the spleen has long been observed, but the cause of this peculiarity is as yet undetected. From these organic derangements results, as another consequence of ague, *dropsy*.

* Cleghorn on the Diseases of Minorca, 1751. Lind on the Diseases of Hot Climates. 1768.

No general prognosis in intermittent fever can be given, which is not qualified by reference to the climate in which the disease appears. In this country, and in Holland, ague is not a disease of danger, but at Sierra Leone, and along the neighbouring coast, it is scarcely exceeded in malignity by any known disorder. Season also, as I have already stated, affects the general prognosis. It is influenced in like manner by the previous duration of the disease. An ague which has been present a considerable time, has so far rivetted itself in the constitution, that its removal becomes tedious and difficult. Relapses under such circumstances are frequent, and tend materially to injure the constitution. An ague is more or less dangerous, in proportion as it is complicated with more or less of permanent derangement of the function or structure of an organ. Enlargements of the spleen from ague are sometimes removed, but they require great vigilance on the part of the practitioner. Agues, particularly as they occur in hot climates, are lastly to be judged of in reference to prognosis, by the *kind* of symptoms present, and by the *degree* of their violence.

The circumstances which predispose the body to an attack of intermittent fever have been detailed by authors with great minuteness, but there are only a few which are of any practical importance. Certain states of the air favour the disposition of the body to receive ague, rivet it in the constitution, baffle us in our attempts to cure the disease, and induce a tendency to relapse from the application of slight causes. Of these the most remarkable are the concurrence of

a cold with a moist state of atmosphere, the prevalence of an easterly wind, and the night air. Of the last of these, it is highly important in a practical point of view to appreciate the full influence. Dr. Lind, whose opportunities of observation were very extensive, lays much stress upon the danger of sleeping, or remaining all night in aguish situations, and in his essay on the diseases of hot climates, he illustrates this by many apposite examples. Weakness of the body, whether owing to a poor and unwholesome diet, long watching, fatigue, severe evacuations, or previous diseases, gives a disposition to ague, and hence it is that it prevails with so much greater frequency and virulence in camps than in any other situations; particularly after a severe campaign, when the men have been hard worked and exposed to great privations. There is reason to believe that the disposition to take ague is affected by certain states of the mind; anxiety and inactivity increasing it, while hope and confidence, and whatever can excite the energy of the mind, lessen the susceptibility. An army is generally most free from ague while actively engaged in military pursuits. The last circumstance which deserves to be mentioned in an enumeration of the predisposing causes of ague is *habit*, or the tendency which previous attacks give to a recurrence of the complaint. In this circumstance, intermittent fevers differ from continued, where one attack lessens the liability to a second; but it is a principle in pathology which, though inapplicable to continued fevers, is yet found to influence the phenomena of several other febrile diseases; sore throat for instance, erysipelas, and

dysentery. So powerful is its effect in ague, that very slight causes are sufficient to renew the paroxysm when long habit has left a predisposition in the system. It even serves to give an intermitting character to other diseases.

The great and important *occasional* cause of intermittent fevers are the effluvia arising from marshy grounds, and called by physicians MARSH MIASMATA. It is certainly a curious fact that this pathological principle, so obvious, and so important in its practical tendency, should have been unknown to, or at least unnoticed by the older medical authors. Sydenham seems to have had a glimpse of it, but he could not have seen it in its true light, for, in his fifth chapter he attributes agues to the ebullition of spirits and viscid juices. Lancisi is the original writer on marsh miasmata.* We are not however even yet acquainted with all the circumstances upon which the production of ague depends. It is presumed however that the miasmata arise from the combination of earth and moisture with putrescent vegetable matter. Moisture alone, though ever so abundant, will not produce ague, for it is a rare disease at sea, even upon the foggy banks of Newfoundland. When the marsh is covered by water, agues are less frequent. Of the exact nature of these miasmata we are ignorant, but some points have been noticed with regard to them, which it will be proper to advert to.

* His Treatise is entitled "De Noxiis Paludum Effluviis."

The most elevated parts of a marsh being always the healthiest, it is imagined that the miasmata are comparatively heavier than the atmospheric air. There is reason too to believe, that they cannot be wafted by currents of air to any great distance from the spot where they were generated, but on this point some differences of opinion have lately prevailed. The calm months of the year being the most productive of agues, it is reasonable to suppose that the miasmata are most powerful when concentrated, and that diffusion by a brisk wind renders them comparatively inert. Culture and proper draining prevent their formation, and hence it is that intermittent fevers are so much less frequent in England at present than they formerly were. A very short exposure to the exhalations of a marsh is sufficient to affect the system. Travelling through the Pontine Marshes has often been followed by an attack of ague. There is considerable diversity in the period which elapses between exposure to marsh miasmata and the invasion of the disease. It sometimes does not exceed a few days, but I have reason to believe that the *latent period* has occasionally extended to several weeks, or even months.

But though it cannot be disputed that marsh miasmata are the most frequent and important exciting causes of intermittent fever, still it would be impossible to deny that it has others. Febrific miasmata may unquestionably arise, under particular circumstances, from almost any soil. Persons residing in very healthy parts of London are occasionally

attacked by intermittent fever. In the time of Sydenham, agues were common in every part of the metropolis. To the great attention which is now paid to the sewers, we are probably in a great measure indebted for the present healthiness of the town, and particularly for our exemption from ague. The occasional occurrence of the disease, therefore, at a distance from marshes, is not to be a matter of surprise. Agues prevail extensively in certain districts where there are no marshes ; but there it will always be found that there is something equivalent to a marsh. There is either a subsoil of such a nature as does not allow water to percolate easily through it ; or there is a great extent of wood impeding thorough ventilation and the action of the sun's rays ; or there is a total inattention to drainage and culture. In one or other of these ways, we may be able to explain the prevalence of ague in the uncultivated parts of America, and in many parts of Italy, particularly the neighbourhood of Rome, Naples, and Syracuse.

These *peculiarities of soil* are not merely the occasion of agues, but they serve to modify the character of continued fever, and of any other febrile disease which may happen to occur in the district. This principle in pathology we have already had occasion to allude to, when treating of continued fever. They give a tendency to *exacerbation* and *remission* in the symptoms of the fever ; and it is not improbable that many cases of what might be considered genuine remittent fever from marsh exhalation, are in fact

cases of common continued fever from cold, modified by peculiarities of soil.

It has been made a question whether agues ought to be cured. An idea has prevailed in many aguish countries, that there was something salutary in the fever. Boerhaave himself, a physician of great genius, was misled by this prejudice, and not satisfied with the negative merit that agues do no harm, and may therefore be suffered to continue, but he speaks of their positive advantages.* These opinions no longer prevail; and the only question which they now suggest, is whether under certain circumstances it may be proper to allow the *type* of the fever clearly to develop itself before bark is given. Another erroneous notion respecting the treatment of agues has frequently been avowed; namely, that their management requires little or no exercise of professional skill. So far is this from being the case, that agues often baffle the best directed exertions of our art. They become complicated with other diseases; their symptoms are modified by climate, season, and habit of body; nor can their treatment be properly adapted to these different circumstances, except under the guidance of pathology. It is true indeed that the hypothetical views of authors, regarding the proximate cause of intermittent fever, give us no assistance whatever in determining the treatment, but the pathology which is

* Cæterum, nisi malignæ, corpus ad longævitatē disponunt, et depurant ab inveteratis malis. Boerhaave. *Aphor*: 754.

subservient to practice is altogether of a different character. The practice in agues is to be regulated in many respects by the same principles which direct us in the treatment of continued fever.

In considering the method of cure in intermittent fevers, their tendency to spontaneous termination must be borne in mind. Hippocrates, in the very dawn of medical science, took notice that tertians, particularly in the month of July, often terminated without the aid of medicine, within five, seven, or at most nine revolutions; and modern experience has confirmed the observation.* Mild vernal tertians will frequently go off spontaneously; but though this tendency is to be kept in view, that the practitioner may feel he is working with nature, and not against her, it is by no means to check his efforts to put a speedy period to the disease.

The treatment of ague divides itself into two parts, the palliative and the curative; in other words, the treatment *during* the paroxysms, and in the intervals *between* them. During the paroxysm, the object of the practitioner is to hasten its different stages, and to relieve urgent symptoms. In the interval, the indication of cure is to prevent its return, and this either by *strengthening* the body, or more properly, by producing such an effect upon it, and particularly upon the nervous system, as may prevent the develop-

* Vide Cleghorn on "the Epidemical Diseases of Minorca." Page 205.

ment of fever. As we are altogether unacquainted with the manner in which marsh miasmata produce agues, so in like manner must we profess our ignorance of the exact *modus operandi* of our febrifuge medicines.

In the cold stage, warm diluents and the pediluvium may be had recourse to. In the hot stage, cold acidulated drink, and saline diaphoretics are adviseable. Two practices however of a peculiar nature have been recommended in this stage of the disease, which require particular notice. The first of these is the employment of blood-letting ; and much controversy has taken place, as to its propriety, even from the time of Celsus. We have the assurance of Pringle and Cleghorn,* that in warm climates and seasons, it is a safe and proper practice, rendering the intermission or remission more compleat, taking off that inflammatory diathesis which counteracts the beneficial effects of bark, and removing those pleuritic and rheumatic affections, and those symptoms of congestion in the brain, which are sometimes complicated with ague. The blood drawn in the hot fit of an ague frequently exhibits the buffy coat.

Dr. Lind speaks in the most favourable terms of the exhibition of opium in the hot stage of ague. He recommends the opiate to be administered about half an hour after its commencement, and he states, that it shortens and abates the fit, relieves the head-ache

* Pringle on the Diseases of the Army. Page 200. Cleghorn on the Diseases of Minorca. Page 197.

which is always so urgent a symptom in this period of the disease, and brings on a profuse sweat with an agreeable softness of the skin, ending in a refreshing sleep. Dr. Lind is entitled to great confidence, for he was an accurate observer, and his opportunities of seeing the disease under all its modifications were very extensive.

In the interval, I have already remarked that the *indications* are more obscure. It is commonly stated that the object is to give *tone* to the system, but the acknowledged efficacy of arsenic in the cure of agues does not countenance such an opinion. The precise effect produced upon the body by those drugs which are the most powerful in curing agues has not been ascertained. They appear to concur in producing some strong impression upon the nervous system, which prevents the development of fever. This idea is corroborated by the consideration, that the nearer they can be given to the expected period of the paroxysm the more certain is their effect. An emetic (R No. 1.) administered immediately before the accession of the cold stage is very serviceable. A strong opiate, especially in combination with æther, as in the antispasmodic draught (R No. 8.), has frequently succeeded in checking the paroxysm, when given on its first approach. The volatile alkali may be used with the same intention. Various remedies of a similar kind, consisting principally of combinations of spirit and aromatics, have acquired great reputation with the vulgar. They agree in producing some strong impression either upon the stomach or

external senses. The most generally successful however of all the means which have been resorted to for the cure of intermittent fever, is the exhibition of bark and arsenic.

Bark is most effectual when given during a state of perfect *apyrexia*, when exhibited in the form of powder, in large doses, and as nearly as possible to the expected paroxysm. One or two drachms may be taken every hour for six or eight hours previous to the fit. Much certainly depends on the *quantity* administered in a short space of time. All means therefore should be taken to prevent its disagreeing with the stomach, or running off by the bowels. For this purpose it may sometimes be advantageously united with an aromatic, or with opium, or a few grains of rhubarb; or the form of decoction and extract (as in R No. 9.), may be substituted for the powder. But there are certain states of the constitution which are found to interfere with the exhibition of bark in any form, or to counteract any good effects from it. The principal of these are an inflammatory diathesis prevailing in the system, disorders of the *primæ viæ*, obstructions of the liver and spleen, and the presence of other diseases. Hence arises the necessity of giving purgatives, or saline, or antimonial medicines, or alteratives, particularly mercurials, either previous to, or combined with bark, according to the circumstances of the case.

Various substitutes for the cinchona bark, native and foreign, have been introduced into the Materia

Medica. They all belong to the class of bitters and astringents; and though attempts have been made to establish chemical differences between them and the cinchona, yet these have thrown no light on the cause of the acknowledged superiority of the latter. Among the best substitutes for the cinchona bark may be reckoned those of the cusparia, of different species of salix and quassia, and the roots of the acorus calamus, bistort, and rhatany.

Of the mineral substances employed in the cure of agues, the most powerful is undoubtedly arsenic, the efficacy of which has been ascertained by the most ample experience. It is best given in the form of the liquor arsenicalis, and in the dose of five drops, gradually augmented. After a certain length of time, sometimes indeed from the very first, it will produce nausea and vomiting, when its exhibition must be suspended, and a few grains of rhubarb given. Under proper management, arsenic will be found to be the most generally useful of all the medicines which have been recommended in the treatment of agues. The best mineral substitute for it is the sulphate of zinc, which is largely employed in the fenny counties of England. It is given in doses of one or two grains, three times a day, and is very highly spoken of.

Remittent fever arises, as I have stated, like the intermittent, from marsh exhalations. It is a type of fever very frequent in hot climates, where it occasionally occurs under a highly aggravated form. Its

symptoms vary with the state of the climate and season, the constitution of the patient, and many *local* circumstances, so that it is difficult to give any precise detail of them. They bear a general resemblance to those of intermittent fever, but other symptoms, which we formerly mentioned as occasionally occurring in the course of continued fever, are met with also in the remittent, and materially affect the character of the disease, the prognosis, and the method of cure. The treatment of remittent fever therefore is to be regulated, partly by those principles which have been laid down as applicable to intermittents, and partly also by a consideration of those which guide us in continued fever.

CHAP. VII.

OF THE YELLOW FEVER.

Controversy on this subject—Varieties of Fever in the West Indies—Distinction between the Endemic and Epidemic Yellow Fever—Symptoms of the Epidemic Yellow Fever—its analogy to Typhus—Treatment of the Disease—Notice of the principal controverted points in the history of the Yellow Fever—Question of Foreign Origin—of Propagation by Contagion—of Exemption from a second Attack.

ALTHOUGH we presume, that in the observations which have been already made, we have explained the most important of those general principles which are involved in the pathology of fever, and though the discussion might therefore be expected to terminate here, still it may be found adviseable to pay some particular attention to the subject of *yellow fever*. It is one which has excited a great deal of interest in this and other countries, during the last thirty years. It has given rise to the most remarkable differences of opinion among persons who are, to all appearance, equally qualified to form a correct judgment regarding it; nor is the controversy yet brought to a conclusion. Little doubt can remain, that these singular differences of opinion have arisen from the want of correct views of the pathology of fever; and it surely

cannot be an useless task to attempt to elucidate a subject, confessedly so obscure, by applying the doctrines which have been already laid down, to an explanation of the principal points in dispute.*

The yellow fever is a term which has been applied to express several forms of febrile disease, which have been observed to prevail in the West Indies, along the shores of North America, particularly at New York and Philadelphia, and more lately in the southern parts of Spain. The *endemic* fever of the West Indies has been frequently denominated a yellow fever, but the same term has been applied to a species of fever which has prevailed in all those regions *epidemically*, and which by others has been called *maladie de Siam*, or the Bulam fever. The endemic fevers of the West Indies may, like the endemic fevers of other countries, be either such as arise from marsh effluvia, or from what we have called *common causes*, cold, alternations of atmospheric temperature, or insolation;—that is to say, they may be either intermittent, remittent, or continued. In almost all the controversial writings on the yellow fever, these different *forms* of febrile disease have been confounded together, and it has accordingly been, from want of precision in the naming and classing these fevers,

* This task has been rendered comparatively easy by the recent labours of Sir Gilbert Blane, who, in his Treatise entitled “Elements of Medical Logick,” has given a very luminous view of the yellow fever question, which almost precludes the possibility of future ambiguity.

that many of the disputed points have originally sprung. But there is a second general cause to which the controversy may be referred, whose influence is even yet more extensive than that of error in the classification of fevers;—I mean, a want of correct knowledge of the general laws of *contagion*. The consequence of this has been, that the analogies and distinctions of epidemic and endemic diseases have been overlooked or misrepresented. It is hopeless to attempt to reconcile the discordant opinions of authors on the yellow fever, if these fundamental doctrines are still made matters of dispute.

Most of the genuine febrile diseases of hot climates appear to have a *bilious* tendency. Both the inflammatory, and the intermittent and remittent endemics of those countries, are frequently accompanied with a yellow colour of the skin, and other symptoms supposed to denote that the functions of the liver are materially disturbed. This is particularly the case in the West Indies; and the common fever of the country is, on that account, known under the familiar appellation of the *yellow* fever. Into the symptoms and treatment of these forms of disease, however, it is not my intention now to enter. They are noticed only, in order to contrast them with the *epidemic* yellow fever, such as that which raged in the West India Islands, and at Philadelphia in 1793; at Cadiz in 1800; at Malaga in 1803; at Gibraltar in 1804 and 1813, and again, at Cadiz in 1819. As this particular form of fever has been observed in all these situations to exhibit very much of the same defined character,

and, as it presents some peculiarities which may distinguish it from other epidemic fevers, I shall give a short account of its symptoms and progress, of the appearances found on dissection, and of the most approved system of treatment.

The attack of the epidemic yellow fever is ushered in, in the usual way, by langour, and rigors. There is sometimes a peculiar dejection of countenance observed, with a remarkable aversion to the least motion; at other times there is an appearance of inebriation. The face is flushed, but the most prominent of the early symptoms is head-ache, of a very peculiar kind. It is exceedingly severe, and referred to the forehead and bottom of the orbits. The eyes appear dull, glassy, suffused, and protruded. The tongue is at first furred and moist, and trembling, but by degrees it becomes dry and black, or sometimes of a fiery red colour. The heat of skin is but little increased. The patient sometimes lies in an almost insensible state, but extreme restlessness has also been noticed.

To this succeeds the second striking feature in the symptoms of the disease, great irritability of the stomach. The matter rejected is very seldom bilious, or if it is so at first, it speedily loses that character. For the most part it is slimy and tasteless, and adheres in small flakes to the sides of the containing vessel. As the disease advances, it assumes a dark colour, and comes to have the appearance of coffee-grounds. This is the *vomito prieto*, the black vomit, which may be considered the characteristic feature of

this disease, as much as buboes and carbuncles are of the plague. The dejections have a tarry appearance. There is often noticed a total suppression of urine, which, like the black vomit, is a fatal symptom. Hiccup, hæmorrhagies, and petechiæ have been observed in some cases, even from an early period.

I have retained to the last, the mention of that symptom which gives name to the disease—yellowness of the skin, but it is not of that importance which might have been anticipated. Many cases indeed run through their whole course without exhibiting it, but when it appears early, or when it assumes a leaden, or livid cast, it is to be considered an unfavourable symptom. A few other peculiarities in the disease are all that remain to be noticed. The yellow fever is occasionally attended with an ulcerated state of the throat. A fatal termination has often happened in the most unexpected manner, a very singular remission of all the symptoms taking place about sixty hours from the first attack, and raising hopes which are soon to be disappointed. Death is sometimes observed to be preceded by a low muttering delirium; at other times the patient has sunk exhausted, but with the intellect quite unimpaired.

The usual duration of the yellow fever is from five to seven days. If the patient passes the sixth day without the recurrence of black vomit, or suppression of urine, his chance of recovery is much increased, but typhoid symptoms occasionally supervene, and prove fatal. Relapses in this disease are very rare.

Upon dissection, very few appearances present themselves which can be considered as throwing light on the pathology of the disease. The body has been observed speedily to become livid. Yellowness of the skin has sometimes been first noticed to occur after death. A state of turgescence of the cerebral veins has been described, and occasionally there has been observed a peculiar redness of the inner coat of the stomach. The gall-bladder is generally found distended with dark and viscid bile. The structure of the liver is not found to be altered. It sometimes assumes an ash colour.

Such are the most usual symptoms of the yellow fever. They will be seen to bear some resemblance to those of the plague, and the analogy between these diseases has been urged with much force by Sir J. M'Grigor. A more important analogy may be traced between the epidemic yellow fever and the genuine typhus fever of this country ; and there can be no doubt, that the former bears the same relation to the endemic fever of the West Indies, that typhus does to the common *synochus* of Europe. It is properly called therefore the typhus *icterodes*. The cause of the yellow colour of the skin in this fever has been made a subject of enquiry. By some it has been attributed to disordered function of the liver ; by others, to bile absorbed from the intestinal canal without hepatic derangement. Sir Gilbert Blane has thrown out the idea, that it may be owing rather to a depraved state of the red globules of the blood. In whatever way this question may be decided, it is perfectly clear that the state of the biliary organs has very little to do with

giving a character to this formidable disease, which is to be viewed as one of the most aggravated forms of continued fever. In respect of mortality, the yellow fever may even take precedence of the plague. At Gibraltar in 1804 the disease raged among the inhabitants, uninfluenced by any distinctions of age, sex, or condition.* The deaths amounted to somewhat more than one in three, a proportion, according to Sir Gilbert Blane, considerably above the devastation of the pestilence of the Levant.

The treatment of the epidemic yellow fever is a point which has attracted great attention from all classes of enquirers, but their observations tend only to shew that it is a disease of so singularly malignant a nature, as, in a large proportion of cases, to bid defiance to all the efforts of art. This is particularly the case when the disease first makes its appearance in any town or district. The peculiar combination of circumstances, whether in respect of local situation, or of the state of the atmosphere, or of the constitution of the inhabitants, which gives the peculiar feature of malignity to the symptoms of the disease, operates also against the practitioner, and deprives him of all his most powerful means of combating fever. The severe head-ache which characterizes the early stages of the disease, naturally suggested blood-letting as a probable means of relief, but experience has proved that, though occasionally, it is not generally beneficial. The blood, when drawn, separates very imper-

* Of a population of nine thousand civilians, only twenty-eight persons escaped an attack of the disease.

fectly ; upon exposure to the air it does not acquire its usual florid colour, and scarcely ever exhibits a buffy appearance. The great object which it is found necessary to keep in view in the treatment of the disease, is the allaying that excessive irritability of the stomach, which leads to the black vomit. Calomel, given at first in a smart dose, so as to operate freely as a purgative, and repeated in smaller doses at intervals of three or four hours, so as to keep up this effect, was the most approved practice among the English practitioners at Gibraltar in 1813. Along with calomel were occasionally united aloes and gamboge. In the exhibition of these medicines no time was to be lost, for it was only by their speedy and full effect, that the prevention or relief of the vomiting could be ensured. Pediluvia, and tepid sponging were found to be beneficial. Under certain circumstances, the warm bath even was administered with good effect. Cold applications to the forehead and hands occasionally served to relieve the urgent head-ache. When the powers of life appeared to fail, it is unnecessary to say that stimulants and cordials were had recourse to. Subacid drinks were given, and a strict antiphlogistic regimen pursued through the whole disease. The same rigid attention to diet and regimen were required during the period of convalescence.*

I have stated, that among the points in dispute

* For many of the remarks contained in this chapter, I beg to express my obligations to Mr. Fraser, Deputy Inspector of Hospitals at Gibraltar, who has obligingly given me access to his voluminous and valuable documents on the yellow fever.

regarding the yellow fever, is the question of the identity of the epidemic yellow, or Bulam fever, with the endemic fevers of the West Indies. Upon this question an opinion has already been given. The other topics of controversy are, first, whether the disease be always imported, or whether it can ever be generated by a combination of *common* or endemic causes ;—secondly, whether being once received into a town, it propagates itself by contagion ; and thirdly, whether those who have passed through the disease are susceptible of it a second time. These are all important questions, the replies to which are not so obvious as to that, which has already been under discussion, and they involve the most difficult parts of the controversy.

The first question is undoubtedly one which should be answered with some caution. Many circumstances connected with the early appearance of the epidemic yellow fever at Philadelphia in 1793, and at Gibraltar in 1804, strongly favour the idea of its having been in those situations an imported disease. Several other facts however might be adduced, which militate against the universality of this doctrine, and there appears nothing inconsistent in allowing that, under peculiar circumstances, the genuine malignant yellow fever may be generated by a combination of endemic causes. With regard to the second question, no reasonable doubt can surely be entertained by any candid, intelligent, unbiassed man, that this disease, being once received into a town, is contagious. The evidence in favour of this opinion is certainly as strong

as for that of the contagion of typhus, or of plague. Whether the yellow fever bears the greater analogy to the former or latter of these diseases, may indeed be disputed. We may hesitate, that is to say, whether the contagion of yellow fever be *common*, or *specific*; but that the disease is propagated by contagion of some kind, cannot be questioned, after the ample experience which has been had, both in America and Europe. If any doubts could have been entertained while the disease occurred only in the West Indies, in consequence of the resemblance of the epidemic to the endemic fevers of those islands, they must have yielded to the obvious arguments suggested by its appearance in Cadiz and Gibraltar. The contagious nature of the disease, it may be remarked, is a question which is perfectly distinct from that of its foreign or endemic origin.

Some of the laws of contagion of yellow fever appear to be ascertained with tolerable accuracy. Its latent period varies from two to eight days. Ten days is, I believe, the longest period recorded of yellow fever appearing, after the exposure to the contagion, and removal to a freely ventilated atmosphere. The contagion of yellow fever has a peculiar range of atmospheric temperature, but on a higher scale than that of the plague. It has never been known, but in those countries and at those seasons when tropical heats, that is, of eighty degrees Fahrenheit's, or upwards prevail. It never fails to disappear as the winter approaches. It is certainly a singular circumstance in the history of the yellow fever, that

it has never been seen, except in one instance, but on the shores of the Atlantic Ocean.

The last circumstance which it is of importance to notice in the history of the yellow fever and the laws of its contagion, is the question, whether it can be taken a second time. The answer is a very short one. Although a few well attested instances to the contrary have been recorded, still a most extensive experience has satisfactorily proved, that the immunity from second attacks is nearly complete, and that it forms one of the most striking characteristics of this remarkable disease.

CLASS II.

THE EXANTHEMATA, OR ERUPTIVE FEVERS.

CHAP. I.

THE EXANTHEMATA IN GENERAL.

Objects of enquiry in this Chapter—Character of this order of Diseases—their relation to Simple Fevers—Defined character and course of Exanthematous Fever—Defined character of the Eruption—their occurrence but once in life—Exceptions to this law, and attempts to explain them—their origin from Specific Contagion—Relation of the Exanthemata to the other Morbid Poisons—Peculiarities of Specific Contagions—Communication by Inoculation—Latent periods—Incompatibility with one another, and with other Diseases—Criticism on Dr. Willan's arrangement of the Exanthemata—their connection with Disease of mucous Membrane.

THE class of exanthemata or eruptive fevers is that to which our attention is next to be directed, and as the diseases which it comprises present many points of analogy, and several peculiarities which distinguish them from other diseases, it may be advantageous to offer some general remarks upon the class, previous to examining its component parts in detail. My object on this occasion will be to point out the pathological relations of the exanthemata, and to

give a general idea of the objects of enquiry in the five following chapters. With this view, I shall direct my attention to the relation which they bear to simple fevers, to one another, to other diseases arising from morbid poisons, and to cutaneous diseases. These objects of enquiry involve the consideration of some of the most important laws which regulate the phenomena of disease, but they can only be very briefly touched in this place.

Idiopathic fevers were formerly stated to be of three kinds, continued fevers, intermittents, and the exanthemata. The latter may be viewed as continued fevers to which an eruption is superadded, and a great deal of what has been said regarding the general doctrine of simple fever, particularly all that part which relates to the prognosis and principles of treatment, will be found equally applicable to the case of fever complicated with eruption. The consideration of the exanthemata naturally follows that of fevers strictly so called, for by such an arrangement we shall be able to exhibit, in a connected view, all the leading doctrines of febrile disease.

The genuine exanthemata are small-pox, chicken-pox, cow-pox, measles, and scarlet fever. There are a few other diseases of lesser importance, which as allied in some respects to these, may be arranged in this division of the work, under the title of the minor exanthemata; but our attention in this chapter will be exclusively directed to the former. The following is the common character of the exanthe-

mata. 1st. They are marked by the presence of fever, which runs a defined course. 2d. They are attended with an eruption, which like the accompanying fever, goes through a regular series of changes. 3d. They occur to every individual once, and only once during life. 4th. They arise from *specific* contagion.

1. The first peculiarity of the exanthemata is the defined character and steady course which the accompanying fever exhibits, under almost every variety of external circumstance and habit of body. Here we trace a very marked and obvious distinction between exanthematous and common continued fever. It is a feature however in the character of the exanthemata, which though applicable as a general principle, requires to be received with some qualification. It is strikingly illustrated indeed by the phenomena of small-pox and measles, but it is less distinct in the scarlet fever ; and in the cow-pox and chicken-pox, very little fever is discernible at any time. The *character* of exanthematous fever, except in the case of one form of scarlatina, is inflammatory, and this it assumes in the young and the old, and in all varieties of climate, season and situation. The regularity in the *course* of exanthematous fever is well shewn in the three days of the eruptive fever of variola, and the eight days of its fever of maturation. These curious facts form a striking illustration of the doctrine of critical days in fever, and of that principle of periodic movement in the animal economy, regulating many phenomena both in a state of health and

disease, to which we formerly referred. It is a singular circumstance, that this corroboration of the doctrine of critical days, should not have been known till above a thousand years after that principle in pathology had been inculcated.

2. The second character of the exanthemata is drawn from their being attended with an eruption which goes through a regular series of changes. This is another of those remarkable facts in the animal œconomy, for which we may find some analogies, but which we shall never succeed in explaining. The appearance of the eruption in each of the diseases of this class is peculiar, and except in some severe cases of chicken-pox, can hardly admit of any doubt. The progress of the eruption in each disease is also peculiar, but it is uniform. That of scarlet fever shews itself on the second day, and declines on the fifth. The eruption of measles shews itself on the fourth day, and fades on the seventh. The eruption of small-pox shews itself on the third day, and matures on the tenth. To this regularity of progress in the exanthematous eruptions there are a few, and but a very few exceptions. In the inoculated small-pox the eruption is sometimes postponed from the ninth to the twelfth day; in the measles from the fourth to the sixth, or even later. The most remarkable exception is that enjoyed by the cow-pox, which has the characters of an *exanthema* without the occurrence of any eruption; but the regular progress of the vesicle and areola are sufficient to entitle it to its present place in the

nosology. Even this sometimes varies, for without any obvious cause the vaccine pimple occasionally remains dormant for four or five days, and is not elevated before the sixth, or seventh day. These cases however are rare, and they only serve to teach us caution in framing our general positions. An enquiry into the course of each particular eruption will form a prominent feature in our account of the respective disease. The exact *nature* of the eruption is not always well understood, as in the case of measles and scarlet-fever; but in that of small-pox it is genuine inflammation.

3. The occurrence of the exanthemata to every individual once, and once only in the course of life, is the most curious and characteristic feature in the history of these diseases. That every race of man, under every possible variety of climate, age, and constitution, should be susceptible of the same disease, that this disease should present every where the same character, and run through the same stages, and having once occurred, should never again appear in the same individual, though exposed to the utmost malignity of infection, are facts in the history of the animal œconomy which may well excite our curiosity. Their general accuracy is unquestionable, at least so far as the constitution of the human body allows us to acknowledge any such widely extended proposition. Here, as in every other part of pathology, exceptions occur. A few constitutions have been met with, which appear to be compleatly insensible to the contagion of small-pox. Some individuals

who cannot be made to take the small-pox or scarlet fever at one age, are yet susceptible of it at another. In like manner it is established on undoubted evidence, that small-pox and measles may occur twice in the same individual. Some pathologists have refused to acknowledge the truth of this exception to the general law of the exanthemata, and have attempted to explain away the cases of secondary small-pox, by presuming on the ignorance or the carelessness of the practitioner in attendance. These and similar frivolous arguments do not admit of serious refutation. Such exceptions have undoubtedly occurred; and it is our business to watch nature, and not prescribe to her the course which she is to pursue.

No doubt whatever can be entertained with regard to the occasional occurrence of second and even third attacks of scarlatina. They are sometimes milder, sometimes severer than the primary. Attempts have been made by pathologists, to explain the causes to which secondary attacks of the exanthemata are to be referred. Sir Gilbert Blane believes, that the first attacks are always or nearly always severe; and he argues therefore, that the secondary attack is owing to the susceptibility of the constitution to the disease being in such individuals *stronger* than in others. Dr. Wells, on the other hand, apprehends, that where a secondary attack occurs, the first will be found to have been mild; that the susceptibility therefore is not greater in these cases than in others, but that the primary attack had not been sufficient to *saturate* as it were the constitution. The phenomena of modi-

fied small-pox, which have lately attracted so much attention, hinge upon this question. Perhaps it will be found that neither of these explanations is altogether satisfactory, and that the occurrence is attributable to some peculiarity in the constitution of the individual, the precise nature of which does not admit of being developed.

4. The last feature in the general character of the exanthemata is their origin from specific contagion. I have already (page 42) explained the difference between the several kinds of contagion, and pointed out a few of the most important principles involved in the doctrine, more particularly such as relate to the operation of *common* contagion, and are subservient to the pathology of fever. An origin from specific contagion is a character of eruptive fevers, but they possess it in common with many other diseases—the plague, psora, syphilis and hydrophobia. It is this character indeed which associates the exanthemata with that tribe of diseases which have been designated by the title of the *morbid poisons*. This phrase has been invented to distinguish these diseases from such as arise from mineral or vegetable poisons, or the exhalations of marshes. It is supposed that the poison in all the diseases now alluded to, is produced from an animal body already in the state of disease, and therefore it is called a morbid poison. The plague has been considered by some authors as an exanthematous disease, but we have elsewhere given our reasons for believing that it is more nearly allied to the typhoid fevers. The yaws

or frambæsia is a peculiar disease, which arising from a morbid poison, and running a defined course, may perhaps be admitted into this class.

Of the nature of the specific contagion in each of the exanthematous diseases we are completely ignorant, and the subject is altogether inscrutable. It is quite clear however that it is something of an exceedingly subtile nature. A single vesicle of cow-pox contains sufficient of the specific matter of contagion to communicate the disease to an incredible number of persons. A single drop is sufficient for each, perhaps a small portion of a drop, and of that, there is reason to believe that the bulk consists of the common serum of the blood. The multiplication of this morbid poison in the body of the affected individual is wholly inexplicable. The older Physicians applied the analogy of vegetable ferments to the explanation of the phenomenon, and certainly with much ingenuity. The doctrine of a *materies morbi* is satisfactorily proved in the case of small-pox, cow-pox, and syphilis, and the old humoral doctrines have doubtless therefore some foundation in nature. Whether they can be extended so as to explain the phenomena of some corresponding affections, and perhaps of some others whose pathological relations are not so obvious, may in future times become an object of enquiry.

The exanthematous contagions were for a long time confounded. Small-pox and measles were for many centuries believed to arise from the same con-

tagion. The measles and scarlet fever were considered by Morton to be the same disease, nor was the diagnosis clearly established until lately. Some pathologists at present believe there is an affinity between the contagions of small-pox and cow-pox, and within the last few years, the notion of the identity of small-pox and chicken-pox has been revived. The origin of all these contagions is involved in obscurity, but though we cannot form the most distant idea how they first got into the world, we can yet in many instances trace, with some precision, the periods when they first began to spread as epidemics. It is a very remarkable circumstance, that the exanthemata, and the several morbid poisons associated with them, were unknown to the antient physicians, and did not appear in Europe till after the birth of Christ. To ascertain the countries in which these diseases originally appeared, and from which they were propagated over the rest of the world, will prove an interesting subject of investigation.

Among the peculiarities of *specific* contagions, communication by inoculation has been mentioned. This however is not a general law. Measles, chicken-pox and scarlet fever cannot be given in this way; and the other diseases of the class share this property with several chronic affections,—syphilis, gonorrhœa, psora, and Ægyptian ophthalmia. The uniformity in the *latent period* of most of the specific contagions, whether febrile or chronic, deserves some notice in a general view of the pathological relations of the exanthemata. It appears to be often as accu-

rately defined as the periods of the fever, and this by an unknown law of the animal œconomy. It admits however of some variety, though apparently not so great as in the case of *common* contagion. The latent period of typhus for instance is supposed to vary from three or four days to two months; that of small-pox and plague certainly does not vary more than a few days.

It has always been reckoned a very striking feature in the history of the exanthemata, that they are not compatible with the presence of each other or of any other disorder. In most cases, if another disease be present, the exanthema will not advance. Thus diarrhœa and fever prevent the success of inoculation. Cases have been mentioned where the small-pox and measles occurring together, the small-pox has been delayed, until the latter has run its course; but this law is subject to numerous exceptions. Small-pox and measles may co-exist. Small-pox and cow-pox have proceeded together, each vesicle preserving its own character. The principle nevertheless is an important one, and it may perhaps be illustrated by the well known fact, that during the prevalence of an epidemic plague or yellow fever, (the one notoriously, and the other very probably arising from specific contagion), all other diseases disappear.

In Dr. Willan's arrangement of cutaneous diseases, it will be found that the natural connections of the exanthemata are broken, and these diseases thrown into other pathological relations, to which they do

not appear to have any claim. This has been done under an idea that there is some essential difference between a pimple and a rash, a vesicle and a pustule. These I believe to be little more than modifications of each other, and by no means so distinct as to become the foundation of nosological arrangement. The same disease is vesicular at one period, and pustular at another. A slight accident may at any time convert the vesicle into the pustule. Upon the whole there can be little doubt, that Dr. Cullen's classification of the exanthemata is pathologically more correct, and in practice more applicable, than that suggested by Dr. Willan, and we shall follow it therefore in the subsequent pages.

The pathology of the eruptive febrile diseases is confessedly as obscure as that of the simple fevers, but latterly an attempt has been made to clear up some of the difficulties in which it is involved, by shewing that disease of the great mucous membranes of the body is implicated in them, as intimately, and to almost as great an extent as the skin itself. The structure and functions of the skin and mucous membranes bear a close resemblance to each other, and many pathological considerations tend to prove that there exists also a very close analogy in their diseases. It would be a rational conjecture therefore, that in fevers where the skin is extensively concerned, the mucous membranes would participate, and observation favours the opinion. The principle appears to be of very general application, and is illustrated not merely by the symptoms which the different ex-

anthemata present in their different stages, but by the appearances also found after death. There is reason to suspect, that upon this intimate connection between exanthematous fevers and disease of mucous membrane, depend several of the most important varieties and anomalies which have been observed; such, for instance, as the recession of the eruptions, and the occasional occurrence of the disease a second time.* As we proceed in the separate examination of the diseases of this order, we shall have frequent occasion to refer to these, as well as to the other general views of the exanthemata which we have taken in this chapter, and which, though avowedly obscure, may yet give us some assistance in explaining their several phenomena.

* This pathological doctrine formed the subject of a very ingenious lecture, delivered by Dr. Harrison before the Royal College of Physicians in London, May 26, 1820.

CHAP. II.

OF THE SMALL-POX.

Introduction of the Small Pox into Europe—Ravages committed by it—Symptoms of the Disease—distinct and confluent kinds—Petechial Small-pox—Prognosis—Morbid appearances—Anatomical situation and structure of the Pock—Peculiarities in the Contagion of Small-pox—General plan of Treatment—Treatment of particular Symptoms—Practice of Inoculation.

It is a commonly received opinion that the small-pox first appeared in China and Hindostan, and that it was known in those countries from a very remote period. This opinion is certainly countenanced by a number of strong arguments and very curious considerations; by the mythology, the religious institutions, the sacred and historical records, the medical works, and the uniform traditions of those countries. In an account of Southern India, however, lately published by Colonel Wilkes, an ingenious attempt has been made to invalidate this opinion, to prove that the small-pox was first introduced into India in the sixth century, and to reconcile all the foregoing arguments with such a supposition. That inoculation was practised in India very long before it became ge-

neral in Europe, is indeed universally acknowledged. The practice appears to have been in the hands of a particular tribe of Brahmins, who travelled through the provinces at certain periods for that purpose.

Whatever opinion may be entertained regarding the antiquity of small-pox in the East, no doubt exists as to the period when it first appeared in the West. This happened in Arabia, somewhere about the year 622, the æra of the Hegyra.* From this point the disease gradually spread into Europe and Asia. It seems probable that it reached England towards the close of the ninth century. Early in the sixteenth century the small-pox was carried by some of the successors of Columbus to Hispaniola, and a few years afterwards it reached the continent of America.

All authors concur in representing the great mortality occasioned by this pestilence whenever it appeared, and the consequent terror which it every where excited. For the first description of small-pox we are indebted to the Arabian Physicians, particularly to Rhazes, who flourished early in the tenth century. In consequence of its increasing prevalence and undiminished malignity, small-pox was studied and described by Sydenham, and various authors of the last century, with an attention to minutiae which can scarcely be paralleled in the histories which we have of any other disease. The consequence is, that a mass of facts has been collected

* See Mr. Moore's "History of the Small-pox."

together concerning the small-pox, which do not admit of being detailed in the compass of an elementary work; nor, under present circumstances, does it appear necessary to devote the same attention to it, which was paid in earlier times. I shall content myself therefore with a very brief description of its more usual appearances, and a notice of some of the most important laws of its contagion.

Small-pox is a disease arising from a contagion of a specific nature, which produces fever, succeeded upon the third day by an eruption of pimples, which in the course of eight days are formed into pustules; these in progress of time dry, and fall off in crusts, occasionally leaving in the skin little pits or scars. It occurs in two forms, or varieties, known under the appellations of the *distinct* and *confluent*; and as the phenomena of the disease vary very considerably, according to the form in which it appears, it will be necessary to describe each of these separately. It may first however be observed that, in both species, the disease divides itself into three stages; the first terminating by the appearance of the eruption; the second by the maturation of the pustules; and the third by the falling off of the scabs.

1. In the *distinct* small-pox, the fever during the first stage is moderate, resembling the attack of common continued fever, but from this it may generally be distinguished by the peculiar symptoms which attend it. Of these, the most important are the gastric symptoms:—vomiting, and pain of the epigastrium

increased on pressure. There occur also considerable pain of the back and loins, drowsiness, lassitude, and occasionally in children, one or more epileptic fits. The attack of fever is sudden, comes on about mid-day, and cannot be traced to common causes. The nature of the disease is put beyond a doubt by the appearance of the eruption, generally upon the third, but sometimes as late as the fourth day. It is first observed upon the face and neck, and gradually extends during the next twenty-four hours over the whole body; when compleated the fever very much subsides, or perhaps altogether ceases.

The appearance and progress of the eruption in the distinct small-pox may be thus briefly stated. It shews itself at first in the form of small red spots, generally most numerous in the face, and quickly elevated into pimples. In the course of two days a small vesicle is observed on the top of the pimple, *depressed* in the middle, and containing a colourless lymph. An inflamed circular margin now surrounds each, which, when the vesicles are numerous, diffuses considerable inflammation over the neighbouring skin, so as to give it a damask rose colour, and as the eruption advances to occasion swelling of the face. Suppuration begins to take place about the fifth or sixth day from the appearance of the eruption, at which time the pustules assume a spheroidal shape. If they are few in number, and distinct, this will be completed by the eighth day, when the pustules are found to contain a thick matter of a yellowish colour. At this period the swelling of the face subsides, and

the pustules burst or shrink, and form crusts, which fall off in a few days, leaving the skin which they covered of a dark brown colour. This appearance generally subsides in a short time, but in particular cases, where the pustules are large, or late in filling, the skin suffers desquamation in those parts, and small pits are subsequently formed.

Such is the usual course of the eruption of distinct small-pox, but it is subject to considerable variety. Its course upon the face is sometimes more rapid, while upon the extremities it is always more tardy, the pustules on the feet and legs being seldom fully ripened until the tenth or eleventh day from their first appearance. Their contents too vary in point of consistence, and hence have arisen those distinctions of vesicular, vesiculo-pustular, chrystalline, and water-pocks, which have been noticed by authors. Some degree of fever occasionally attends the maturation of the pustules, when they are numerous on the face. Besides swelling of the face, it is commonly noticed that about the fifth day, some hoarseness and difficulty of swallowing occur, accompanied with an increased secretion of saliva, but all these affections of the fauces abate when the pustules are fully matured. If these are very numerous, particularly on the face, they run together, and constitute the *confluent* form of the disease, the symptoms of which, though they bear a general resemblance to those already described, yet exhibit several important peculiarities.

2. The approach of the disease is here sometimes

attended with coma, or delirium, or epileptic fits, which have proved fatal, particularly in children, before the appearance of eruption. This is seldom delayed in confluent small-pox beyond the third day. The vesicles appear sooner, but instead of rising to a spheroidal form they are flat and irregular. Instead of a thick yellow pus, the matter which they contain is a brownish *ichor*; instead of the damask redness which surrounds them in the distinct form of the disease, the skin which may be free from pustules is pale and flaccid. The swelling of the face comes on earlier, and rises to a greater height. The salivation which attends it is more profuse, and it becomes viscid in the progress of the disease. When the pustules break, extensive black or brown scabs are formed, attended with a peculiar *fætor*, which do not fall off for many days, and are pretty certainly followed by pits and scars.

The accompanying fever presents differences no less important. In some cases, and often indeed in some epidemics, it has been observed to be a fever of the *typhoid*, rather than of the inflammatory type. The eruptive stage is always more severe. The fever does not cease on the appearance of the eruption, though it may experience a slight remission. About the period of maturation, a remarkable exacerbation takes place, constituting what is called the *secondary fever*. In some of the worst cases of confluent small-pox, those symptoms appear which have been supposed to mark a *putrescent* diathesis in the system. The eruption assumes even from an early period a

livid hue. Petechiæ and vibices appear interspersed among the pustules. A disposition to gangrene manifests itself, particularly on the extremities.

The prognosis in small-pox is almost entirely regulated by the form in which it appears. Distinct small-pox is a disease of little or no danger, while the confluent variety is attended under the most favourable circumstances, with imminent hazard. Even if life be spared, it often lays the foundation of tedious and painful and dangerous diseases. It is computed that on an average one of six, who receive the small-pox in the natural way, dies. In confluent cases, the danger is proportioned to the kind and degree of fever present, to the number of pustules on the *face*, and to the complication of visceral disease, more particularly of acute bronchial inflammation. Among the most unfavourable symptoms, authors have enumerated a very early eruption, subsidence of the usual swelling, paleness of the skin, and great severity of the secondary fever. The eleventh and thirteenth days are those of the greatest danger.

On dissection of those who die of small-pox during the first or eruptive stage, the mucous membrane of the bronchia, œsophagus, stomach and intestines is found in a state of high inflammation. In those who have died under a load of pustules, the same appearances are sometimes traced, but *pustules* are never met with in the cavity of the abdomen. It appears indeed that the mucous coat of the intestinal tract is unsusceptible of them. Variolous pustules however may be

observed in great abundance in the mouth, and along the mucous membrane of the *bronchia*, even as low as their bifurcation. This curious distinction between the two great mucous membranes of the body is probably referable to some difference in their anatomical structure.

The seat and structure of the pock has been a frequent subject of enquiry, and by some it is supposed to be still involved in obscurity. The *rete mucosum* appears to be the true seat of the small-pox pustule, but the inflammation sometimes dips down into the *cutis vera*. The pock, when minutely examined, exhibits in its early stages a cellular structure, the walls of which are perfectly transparent, and appear to secrete the fluid which distends them. At the bottom of each pock a small slough of the *cutis* may be observed from the fifth to the eighth day, of a circular form, and about the thickness of writing paper. By several eminent pathologists, this slough is considered the certain test of small-pox, and to be owing, not so much to the intensity as to the peculiar *kind* of the inflammation.

The contagion of small-pox has a latent period of from twelve to fourteen days. Some individuals have been met with, who resist it during their whole lives, though fully exposed to its influence; and it has been calculated that one in fifty exhibits this peculiarity of constitution. Though in general a person who has once undergone the disease is unsusceptible of it in after life, yet some exceptions to this law have also

been noticed. Many unequivocal cases of *secondary* small-pox have occurred in all ages and countries ; and local sores from small-pox have been seen in nurses and others, who have passed through the disease. All ages are alike susceptible of it. It may be communicated by the mother to the foetus in utero. There is even reason to believe that the mother may give small-pox to the child though herself secure, from having previously passed through the disease.

Different opinions have been entertained regarding the causes of the different forms which small-pox assumes. By some the distinctness or confluence of the pustules has been attributed to differences in the *malignity* of the contagion. This opinion is supported by the consideration that when small-pox prevails *epidemically* it is generally severe, but innumerable instances are on record of the most confluent small-pox being produced by the most distinct kind. Some attribute the differences to mere *idiosyncrasy*. Cullen and Sydenham are disposed to ascribe it to the greater or less degree of inflammatory diathesis in the system, and this opinion is strongly corroborated by the acknowledged effect of cold and the antiphlogistic regimen in preventing confluence. Peculiarity in the texture of the skin is probably concerned also in the phenomenon, for in this way only can we account for the greater disposition to confluence upon the face than on other parts. The rete mucosum is there more loaded with vessels, and these have manifestly a greater disposition than common to receive red blood.

The general principles of treatment in small-pox were for a long time misunderstood, and measures consequently adopted which greatly increased the mortality of the disease. In the distinct small-pox very little is requisite; and the danger in confluent cases is urgent under any system of management; yet the advantages of a well regulated treatment are as obvious and great in small-pox as in any other disease.

During the eruptive stage the object is to moderate inflammatory excitement generally, and to lessen the quantity of eruption. For this purpose the patient is to be freely exposed to a cool atmosphere, and the strictest antiphlogistic regimen is to be pursued. Great diversities of opinion have prevailed regarding the propriety of blood-letting in this and the other stages of small-pox. There is no reason to believe that it lessens the *number* of pustules; and it has been supposed to impair that strength of the body which is indispensable throughout the latter stages of the disease, when extreme weakness so often exists with extensive ulceration and gangrene. In forming a judgment however on this point, it is necessary to bear in mind, that these symptoms, though they sometimes arise from real debility of the powers of life, yet are often attributable to excessive inflammation of the skin, which might have been prevented by a judicious employment of the lancet. It is to be remembered also, that in small-pox, fully as much as in any other form of fever, there is a tendency to local congestions and inflammations in the head, ab-

domen, and especially the thorax. These must be treated upon the same principles as have been already urged with regard to typhus, and fever generally.

Attention should be paid therefore to the concomitant symptoms, and the character of the pulse; and where there is evidence of local determination, it must be obviated, according to its urgency, by local or general bleeding, at any period of the disease, without reference to the affection of the skin. Occasional purging and the usual antiphlogistic treatment are advisable during the whole period of febrile excitement. When the vesicles do not rise, or are filled only with a bloody serum, the practice must also be regulated by the character of the pulse. Commonly these symptoms mark a failure of the *vis vitæ*, and the tone of the system is to be supported under such circumstances by wine, bark, and aromatics, with the occasional exhibition of a purgative. When the pustules are nearly matured, and throughout the latter stages of the disease generally, great benefit is experienced from opiates, in relieving the irritation of the skin and procuring sleep. There is a remarkable resemblance in the symptoms of the latter stages of small-pox to those of extensive burns and scalds, where the good effects of opium are well ascertained. While the scabs are separating, a cordial plan of treatment is often necessary, but it is requisite also in many cases, to look to, and counteract by laxatives and a proper diet, the tendency to local inflammation, which may continue even to the very latest period of the disease.

There are certain symptoms occurring in the course of small-pox which require particular management, but for which it is difficult to lay down any precise rules. Of these the most important are the sudden recession of the eruption (a very rare occurrence,) obstinate vomiting, diarrhœa, copious salivation, a suppression of urine, and rigors. To meet these symptoms, general or local blood-letting, blisters, sinapisms, emetics, and the warm bath have been advised, but the propriety of some of these practices is very questionable. The symptoms may, for the most part, be as effectually relieved by the judicious regulation of those means which have been already mentioned, *purgings*, *opiates*, and *cordials*.

The phenomena of inoculated small-pox bear a close resemblance to those of the disease taken in the *natural* way. Rigors occur on the seventh or eighth day from insertion, and the eruption on the ninth; and to this it is owing that the inoculated takes precedence of the *casual* disease. The eruption is generally of the distinct kind, and in a great majority of cases the number of pustules is very small. Hence in the inoculated small-pox, the proportion of deaths instead of being one in six, as it is in the casual, does not exceed one in five hundred. There is every reason to believe however, that improper management may increase, here as in the former case, the quantity of the eruption, and the same principles therefore apply equally to the treatment of the inoculated, and of natural small-pox.

CHAP. III.

CHICKEN-POX, COW-POX, AND MODIFIED SMALL-POX.

Early opinions regarding Varicella—Controversy respecting its identity with Small-pox—Modern descriptions of the disease—Diagnosis—Of Cow-pox—its introduction by Jenner—progress of the Vesicle—Small-pox and Cow-pox occurring together, or after each other—how modified—Characters of modified Small-pox—Causes of Small-pox after Vaccination—Proportion of the vaccinated who take Small-pox.

FROM the earliest periods at which small-pox was noticed, we read of a mild eruptive disease, liable to be confounded with it, but requiring attention in the diagnosis, because not preventing it. This has gone by the several names of chrystalli, variolæ lymphaticæ, spuria, volaticæ and pusillæ. By Riverius it was called varicella. Morton adopted from the vulgar, and introduced into medical language, the term *chicken-pox*. The descriptions of this disease, which have been given by different authors, and their pathological views concerning it and its relation to small-pox, differ materially from each other.* It is clear

* See Cross on "The Variolous Epidemic of Norwich" in 1819. Part 2. Chap. 2. Sketch of the History of Varicella.

that acknowledging the necessity of diagnosis, they have yet failed in establishing it satisfactorily, for after the lapse of nine hundred years, the subject is declared to be so obscure as to demand fresh investigation.

For the last fifty years, authors have been in the habit of drawing their descriptions of varicella from the paper published by Dr. Heberden, in the first volume of the Transactions of the College of Physicians of London. The points of doctrine which he principally set forth were, that the chicken-pox arose from a specific contagion, affected the same individual but once during life, afforded no protection from small-pox, and was capable of being communicated by inoculation. It does not appear indeed that he ever witnessed inoculation from this disease, but in his description it is implied that it has been inoculated from, although by mistake, and that an eruption followed which has passed with inexperienced and hasty observers for the small-pox, from which however it does not secure the constitution. Dr. Willan, in 1806, bore testimony to the general accuracy of Dr. Heberden's description. He detailed the appearance of the eruption with more precision, but coincided in opinion that it is a contagious disease, affording no protection from small-pox, and communicable by inoculation.

More recent observations have tended to shew that some mistake has crept into the views of these authors concerning the pathology of varicella. It

has been rendered highly probable that the genuine varicella is not communicable by inoculation,* but it has at the same time been shewn, that many cases of *supposed* varicella do produce a disease by inoculation, which is not chicken-pox, but small-pox. Reasoning from these data, some modern authors have retained the notion of the specific disease varicella, but have given it new characters; while others have revived a doctrine which prevailed very generally in former times, and was distinctly avowed by Sauvages, viz. that chicken-pox and small-pox originate in one and the same contagion. In support of the latter opinion, many ingenious arguments have been brought forward in a late essay, which has certainly thrown much light upon the history of those eruptive diseases, connected in their origin or symptoms with variola.† As this hypothesis however is still involved in many difficulties, it will be proper here to adopt the former notion, to consider varicella as a disease altogether distinct from variola, and to state its distinguishing characters. With this view I shall avail myself of the description of varicella given by Mr. Bryce, and quoted at length in the publication just alluded to.

The eruptive fever of varicella is very slight, and soon followed by an eruption which is distinctly *vesicular* from the earliest period. The vesicles when

* Bryce. Ed. Med. and Surg. Journal, Vol. 14. p. 467.

† Thomson's "Account of the Varioloid Epidemic of Scotland." London, 1820.

first seen are about the size of a split pea, perfectly transparent, and covered only by a cuticle as thin as that raised by a scald or blister. On puncturing the vesicle, a clear lymph is evacuated, and its sides fall completely to the level of the surrounding integuments. There is no central depression observed in them. The eruption commences on the breast and back, and subsequently extends to the face, scalp, and extremities. It is attended, especially in children, with an incessant tingling or itching, which leads them to rub off the tops of the vesicles, so that the characteristics of the disease are often destroyed at an early period. Some of the vesicles thus broken and irritated are afterwards surrounded by a degree of inflammation, and are converted into pustules. Even if the vesicle remains unbroken, the contained fluid becomes opaque about the fourth day, at which time the disease is in many cases with difficulty distinguished from small-pox by the eye alone. The vesicles are nearly always distinct. One case of confluent varicella however has been described by Mr. Ring. On the fifth day the vesicles appear covered with slight crusts, which are yellowish, scaly and irregular, lying flat upon the surface of the body. In a very few instances only, have they been succeeded by pits.

Dr. Willan and others have noticed that the vesicles of the chicken-pox do not all appear in one day, but follow each other in successive crops. This however cannot be urged as a diagnostic mark of the disease, for it occurs in the modified small-pox.

The distinguishing characters of varicella are those which have been already detailed. If the eruption, instead of being vesicular, exhibits in its early stages the appearance of induration, if the vesicles have a central depression, if after discharging their contents on the third day, a firm tubercle be found below, and if the crusts are compact, defined, of a clear horny smoothness, and elevated, it is probable that the disease was not varicella, but arose from the contagion of small-pox. All authors are agreed that the genuine varicella affords no protection from small-pox. It is pretty generally admitted also, that it sometimes spreads epidemically (as in schools); and hence some have been inclined to attribute it to *specific contagion*. It is not now however contended by the best authors, that the contagion is communicable by inoculation, or that the disease affects an individual once only during life. The chicken-pox being a very slight disease, it is unnecessary to add any thing respecting its treatment.

The introduction of cow-pox into general notice, is an event in the history of medicine too interesting to be passed over without some comment. The merit of the discovery rests wholly with Dr. Jenner, who made his decisive experiment in 1796, and two years afterwards published his account of the *variola vaccinae*. It has been rendered highly probable that the cow-pox is only a secondary disease in cows, that originally it is an affection of the hoof of the horse, communicable to man directly, or to him through the cow. It has the curious property of so

modifying the human constitution, as in many cases to remove altogether the susceptibility of small-pox contagion, or where from idiosyncrasy it fails in this, to secure at least the individual from the *dangers* of that formidable disease. The practice of vaccination spread with astonishing rapidity over every quarter of the globe. The consequence has been the almost complete extermination of the small-pox from many countries, and a most important diminution in its malignity in others, where that desirable event has been impeded.

The cow-pox is a disease deserving of investigation, on account of its great importance to mankind. It has its laws, characters, and anomalies, as well as other diseases of more urgency; nor can a practitioner judge correctly of the progress of vaccination, or pronounce with any confidence as to the security which it gives, unless he has studied the subject in its various details, and enquired into the sources of fallacy, and the modifications of which the disease is susceptible. Our experience in cow-pox is indeed still very limited. It has been known only for about twenty years, and it will be hazardous to say that we are even yet acquainted with all its peculiarities. Viewed in this light, it cannot therefore be a matter of surprize, that the opinions now entertained by pathologists on the influence of vaccination differ, in some respects, from those of the early writers.

The cow-pox is communicable only by inoculation, and except in a very few instances, it has never

been known to occur twice to the same individual in its regular form. Those who have passed through small-pox are occasionally affected by inoculation of the vaccine virus, but the appearances are not those of regular cow-pox, which may be defined as follows. After twenty-four hours the punctured point begins to inflame, and by help of a microscope, a small vesicle with a regularly rounded edge may be observed to arise. This on the third day appears to the naked eye as an elevated point. By the fifth day the vesicle is quite distinct, and lymph may be procured from it. The lymph is transparent, and like the matter of small-pox, is inclosed in little cells. On the eighth day, an *areola* or inflamed circle of about an inch and a half radius, begins to form around the vesicle, which is now in its most perfect state. On the eleventh day the areola is at its height. As it fades, it leaves one or two concentric red circles, which continue visible for two or three days. On the fifteenth day the vaccination may be considered to be completed. The lymph in the mean time becomes muddy and dark, and ultimately desiccates into a mahogany coloured crust, which drops off towards the end of the third week, leaving behind it a small, circular, and superficial eschar.

During the formation of the areola, it is often stated that symptomatic fever may be observed, particularly in children, and this has been held out as a test of perfect vaccination; but the fact is questionable, for in vaccinating adults, it is not met with. The true test of the constitution being affected is the

regular progress of the vesicle. But this may be interrupted in several ways. The vesicle may be injured by accident, or by being rubbed. An erysipelatous inflammation may come upon the arm, and take place of the true areola, and pus may be formed instead of vaccine lymph. The system may be pre-occupied by some chronic cutaneous disease, or fever may supervene. In all these cases the necessary regularity in the progress of the vesicle is disturbed, without which no vaccination can be considered altogether complete, but with which, none can ever be declared imperfect. There seems to be no foundation for that hypothesis of a *spurious* cow-pox, which was once formed to explain some of the anomalies which this disease presents.

Of the interference of different febrile diseases with the progress of the vaccine vesicle, numerous instances have been recorded. The *suspension* of its progress might have been anticipated from the known facts of the reciprocal action of contagious fevers upon each other; but not only is vaccination retarded by these fevers, (measles, scarlatina, chicken-pox, typhus, and the influenza), but it is occasionally rendered by them altogether inefficient. The phenomena presented by the occurrence of small-pox, natural or inoculated, with cow-pox are different; and they seem to point out some analogy existing between these diseases, which, coupled with other circumstances, may justify Dr. Jenner in having given to the latter the title of *variola vaccine*.

Dr. Willan found that inoculation on the *ninth* day from vaccination failed, but by inoculating with variolous matter at different periods, not exceeding a *week*, from the insertion of the vaccine lymph, small-pox followed. The eruption thus produced may appear as late as the fifteenth day of the vaccination, but the disease is milder and shorter in its course than usual, and it is *modified* in its appearances. In the case of *natural* small-pox, the sixth is the latest day at which it can appear after vaccination, so as to go through a severe and regular course. If it occurs at a later period than this, it is generally modified; and this modified or imperfect variolous eruption was, in the early history of vaccination, often mistaken for an eruption from the vaccine virus. Many errors indeed have arisen from an ignorance of the phenomena that attend the combination of these two diseases. Their influence is reciprocal. If the eruption of the small-pox takes place before the areola should begin to form around the vaccine pock, the latter loses its regular character, while the eruption of small-pox follows its usual course. If vaccination is practised immediately preceding, or subsequent to the eruption of small-pox, the vaccine vesicle does not come forward. By inoculation with vaccine and variolous matter at the same time, both diseases run their usual course.

Such are the principal phenomena which are presented by small-pox and cow-pox occurring together in the same individual. A superior interest has lately attached to the occurrence of these diseases after each

other, at distant periods, particularly to that of *small-pox after vaccination*.

The cow-pox had not long been introduced, before it was ascertained that the preventive power of the vaccine virus was not perfect, and every year's experience serves more and more to shew, that a certain proportion of those who have undergone vaccination will take small-pox at a subsequent period of their lives. The circumstances under which this occurs, the causes to which it may be ascribed, the proportion of vaccinated subjects thus affected, and the characters of the disease, have lately excited much attention, and they will require to be rapidly sketched in this place.

The characters which small-pox presents when it occurs subsequent to vaccination, have been detailed with great minuteness by various authors, chiefly with the view of establishing the diagnosis between it and varicella; but the view which we have taken of that disease will preclude the necessity of equal precision here. It has sometimes occurred in its most genuine form, but in by far the larger proportion of instances, it is modified either in the aspect or progress of the pustules. So completely altered is the appearance of the eruption, on some occasions, by the influence of previous vaccination, that the true nature of the disease could never have been suspected by one who had not observed it in a variety of instances, and marked the insensible gradations by which its characters run into each other. The erup-

tive fever is generally severe, but in almost all cases recedes entirely on the appearance of the eruption. The pustules are often hard or *horny*, but scarcely ever fail to exhibit the diagnostic mark of variolous eruptions, depressed centres. They run through their stages with rapidity, maturing for the most part on the fifth day.

That this disease is a modified form of variola there can be no doubt. It follows exposure to variolous contagion; in its severer form it is capable of communicating the *casual* small-pox, and the mildest varieties of it will produce genuine small-pox in the unprotected by inoculation.

The danger attending it is very small. Mild as the inoculated small-pox is, small-pox after vaccination is even milder. Among the many thousand cases of it recorded, there are not more than two or three deaths. It may occur at any period subsequent to vaccination. It has been taken by persons who had previously exposed themselves with impunity to the full influence of the variolous contagion. It is nearly always taken in the natural way, very few authenticated cases being on record of the occurrence of inoculated small-pox after vaccination.

The disease has been by some ascribed altogether to incomplete vaccination, but without just reason, for it has occurred in many cases where the progress of the vaccine vesicle was to all appearance perfect. By others it has been attributed to the deterioration of

the vaccine virus from successive inoculations. This opinion however is unsupported by any arguments. Taking all the evidence which has been afforded us respecting small-pox after vaccination, it appears that we must seek for its cause in that law of the animal economy which regulates the susceptibility of various contagion. Natural small-pox in its severest form does not always afford protection from a subsequent attack of the disease. To that *peculiarity of constitution* which favours secondary small-pox, we must probably be content to refer the occurrence of small-pox after vaccination.

The proportion of the vaccinated who take subsequent small-pox is a point of the utmost consequence to determine, but no satisfactory conclusions can be drawn from the calculations which have hitherto been made. Upon this indeed must ultimately depend the fate of vaccination ; but no reasonable doubt can be entertained from the facts now before the world, that the proportion is so very small as not to affect, in any sensible degree, the credit of vaccination, which must continue therefore to uphold the fame of Jenner, and the triumph of medical art.

CHAP. IV.

OF THE MEASLES.

First appearance and early history of the Measles—Symptoms and Sequelæ of the Disease—Putrid or malignant kind of Measles—Peculiarities in the Contagion of Measles—Treatment of the Disease.

THE MEASLES was introduced into Europe about the same time as the small-pox, and followed in its track. For a long time it was supposed to be only a variety or modification of that disease, and as such it is described by Hali Abbas and Rhazes. Diemerbroeck in 1687, and Morton in 1696, maintained the *identity* of small-pox and measles, nor was it until lately that the diagnosis was fully established. Sydenham described accurately the measles which prevailed in London in 1670, and to his history of the disease very little has been added by more modern authors. For the few additions which have since been made, we are chiefly indebted to Dr. Watson in 1763, and to Dr. Willan in 1800. Several *species* of measles have been described by nosologists, but they are all referable to one,—the *rubeola vulgaris* of Dr. Cullen; the other forms which measles assumes being only modifications of this, arising either from a pecu-

liar condition of the atmosphere, or the constitution of the individual affected.

The measles commences with the usual symptoms of *pyrexia*; nor is it at first to be distinguished from an attack of common continued fever. The diagnosis is to be effected by a knowledge of the prevailing epidemic, and attention to those catarrhal symptoms, which are the constant concomitants of the eruptive fever of measles. The mucous membranes of the head and chest are alike affected; the tunica conjunctiva, the Schneiderian membrane, and the mucous membrane of the bronchia. The eye-lids are swelled, and the eyes suffused, watery, and morbidly sensible to light; there is a copious thin secretion from the nose, with sneezing; and lastly, a dry cough, with hoarseness and some degree of dyspnœa. Besides these catarrhal symptoms, the eruptive stage of measles is marked by considerable heaviness of the head, and drowsiness, amounting in some cases almost to coma. The heat of the skin is great, the pulse is frequent and hard, and the general marks of *pyrexia* are severer than what occur in cases of common catarrh. The eruption usually shows itself on the fourth day from the occurrence of rigors, but it is sometimes delayed a day or two. Cases indeed have occurred where the previous catarrhal symptoms continued for eight days, or even a fortnight.

The eruption of measles first appears on the forehead, and gradually spreads over the whole body. It shews itself in the form of distinct red, circular

spots, which afterwards coalesce into patches of an irregular figure. The colour of the eruption is of a dingy red, very different from the *vivid* redness of scarlet-fever. It is sensibly elevated upon the face, and often also upon the breast and back, but scarcely ever upon the extremities. Upon the first appearance of the eruption, the catarrhal symptoms and the accompanying fever sometimes subside completely, but this is by no means a frequent occurrence. Indeed they are oftener aggravated, so that upon the second or third day of the eruption it is not uncommon to meet with symptoms of the most acute pneumonia. On the second day the eruption on the face is most vivid, and as it declines on the face, it is at its height on the extremities. In about five days it has completely disappeared from the whole body. A slight discoloration of the skin commonly remains for a few days, which in some cases goes on to desquamation.

The decline of the eruption is not always followed by the subsidence of the other symptoms. Even if the catarrhal symptoms have not merged in those of active pneumonia, a considerable degree of cough, or of difficulty of breathing frequently remain, marking the continuance of that inflammatory disposition which characterizes the former stages of the disease. The pulse continues frequent, and full, and in scrophulous habits of body this state of disease often ends in hæmoptysis, hectic fever, and genuine consumption. All the *sequelæ* of measles have an inflammatory character. Upon the decline of the eruption it is frequently observed that a diarrhœa comes on, and

Sydenham was, I believe, the first to take notice that this yielded to blood-letting. Among the other consequences of measles may be enumerated ophthalmia, swellings of the lymphatic glands of the neck, chronic eruptions of the kind called *porrigo*, discharges behind the ears, or affections of the bowels ending in *marasmus*. Inflammatory symptoms of an urgent kind often supervene when the practitioner is least prepared for them, and therefore a caution should be given to watch the patient attentively during the whole period of convalescence.

Among the irregular forms of measles may be first noticed that species of the disease, called by Dr. Willan *rubeola sine catarrho*. It is a very rare variety, and only interesting in a pathological point of view. The most remarkable anomaly which the history of measles presents, is its occasional occurrence in a very highly aggravated or *malignant* form, and this not in individual cases, but as an epidemic. Such a form of measles prevailed at Plymouth in 1745, in London in 1763, and at Edinburgh, from September to December 1816.* The peculiarities of these epidemics were that the symptoms of the eruptive stage were unusually severe, and that extreme debility quickly supervened with restlessness, or sometimes coma, a disposition to vomiting, a dry, hard, or black tongue,

* Consult the Works of Huxham, and the Observations of Dr. Watson in the 4th vol. Med: Obs: and Enq:—See also the Ed: Med: and Surg: Journal, January 1817.

and a deep red colour of the fauces,—typhoid symptoms, that is to say, with great irritability of the stomach. In these cases too, the eruption did not exhibit its usual appearances. It frequently receded in the course of the first twenty-four hours, and when it appeared, was less elevated than usual, and of a dark and livid colour. A large proportion of these cases proved fatal, and on dissection, mucus was found collected in considerable quantity in the bronchia, with other marks of inflammation or congestion within the thorax. In the epidemic of Edinburgh in 1816, the recession of the eruption was the worst symptom; few recovering in whom this occurred. It was neither attributable to cold, nor to the too free use of cathartics. It is commonly said, under these circumstances, that the energy of the system does not prove sufficient to *throw out* the eruption. The more correct expression seems to be, (and the phenomena of small-pox and scarlet-fever give countenance to this view of the case) that when the mucous membranes are violently attacked in the first instance, that *metastasis* to the skin does not take place, which under common circumstances relieves them.

The measles arises from a specific contagion, the latent period of which is about eight days, varying however to ten, or even fourteen. It has been disputed whether measles can be taken a second time. By some of the older authors its occasional recurrence was admitted, but of late years the fact has been most satisfactorily established. Dr. Baillie has described

eight instances of the kind, and it is a singular circumstance that they occurred in individuals of the same family.* Dr. Willan has thrown out the suggestion that where there are no catarrhal symptoms, the susceptibility of the disease is not removed. The measles prevails generally during the spring months, and often along with small-pox. The circumstances which determine the severity of the disease in particular individuals are not very well ascertained, but it is certain that in scrophulous habits, and in those of a plethoric disposition, it is principally to be dreaded.

Dr. Home, of Edinburgh, informs us that he succeeded in inoculating the measles, by applying over an incision in the skin cotton dipped in the blood of a patient labouring under the disease. He states that the eruptive fever followed in six days, that the symptoms were mild, and the lungs not affected as in the casual disease. It does not appear however that these observations have been verified by any later experiments. It is satisfactorily ascertained that the measles delays the progress of vaccination, and of the pustule of the inoculated small-pox. Two cases however are recorded, by Dr. Russell, of small-pox and measles running their regular course in the same individual, at the same time.

The treatment of measles, in its common form, must be regulated chiefly by the symptoms which mark the

* Transactions of a Society for the Improvement of Med: and Chir: Knowledge, Vol. 3.

tendency to thoracic inflammation. It is well ascertained that these are often aggravated by a free exposure of the body to cold, either during or previous to the eruption; and some have remarked that this aggravation of the catarrhal symptoms is occasionally attended by a *recession* of the eruption. Moderate warmth therefore is on all accounts adviseable in measles. It has been imagined that active purging during the early stage has contributed to repel the eruption, and thus to increase the danger of the patient. This observation I have never been able to verify. On the contrary, saline purgatives seem well adapted to diminish the inflammatory excitement, which prevails throughout the whole course of the disease. In mild cases nothing further is required than promoting a gentle perspiration, and exhibiting an occasional laxative.

Where pneumonic symptoms prevail, a more vigorous practice is necessary; but a distinction is here to be made, which Dr. Willan has placed in a very clear point of view. The oppression of the respiration, and the cough which accompany the first appearance of this, and of other eruptions, do not appear to depend on true inflammation, for they often go off suddenly, and they may, at any rate, generally be left to their natural termination. But it is upon the third day of the eruption, when the dyspnœa and cough become aggravated, while the eruption is declining; when the cough in particular is hard, and accompanied by pain in the chest, that an active system of treatment is re-

quired. Bleeding from the arm is then indispensable, and must be repeated in proportion to the urgency of the symptoms. Even children of a tender age require in measles this evacuation, for which leeches and cupping afford but an imperfect succedaneum. Children do not bear general blood-letting well, but they bear it better in measles than in almost any other disease. The immediate danger from pneumonia, and the more distant but not less alarming risk of phthisis, make it adviseable to check the pneumonic symptoms in the speediest, and most effectual way.

Saline and demulcent medicines are useful. Opiates may be given with much advantage after bleeding and aperients, if the cough continue troublesome. A blister should be applied to the chest. Upon the decline of the disease, if the pulse remains frequent, it will be proper to confine the patient to a very mild diet, and to direct a saline draught, with a few drops of tincture of digitalis, to be taken every six hours. The convalescence of measles does not bear the exhibition of bitter and tonic medicines, like that of many other febrile diseases.

When the measles assumes that malignant or typhoid form which we formerly described, recourse must be had to the warm bath, blisters, wine, and *cordials*; (aromatics, serpentaria, ammonia, ether). The observations of Dr. Watson on the treatment of this form of measles are judicious, and applicable to disease in a very extended view. If bleeding under

these circumstances be resorted to, as this author remarks, the patient loses more by the debility which is brought on, than is gained by the relief afforded to the circulation within the thorax. It may be remarked indeed generally, that in all typhoid fevers, it is a point of great difficulty to determine, how far local congestions and inflammations are to be relieved, at the risk of reducing too much the tone of the system.

CHAP. V.

OF THE SCARLET FEVER.

First notices of the disease—Nosological distinctions—Description of the different varieties of Scarlatina—Prognosis—Pathology—Principles of Treatment—Nature and treatment of the Dropsy succeeding Scarlatina.

THE scarlet-fever is probably a disease of very modern origin. No mention of it is made by the antient or Arabian authors, and the first time it is distinctly noticed is but little more than two hundred years ago. It has been suspected that the contagion came originally from Africa. Be this as it may, it first broke out in a severe form in Spain in 1610, from whence it spread to Naples, where it raged epidemically in 1618. In 1689 the same disease made its appearance in London, and was described by Dr. Morton, though not with the accuracy of the first Spanish and Italian authors. In 1735 it broke out in North America, and spread gradually but slowly over that continent. One of the most curious circumstances in the history of the disease is the slowness of its diffusion.

When the scarlet fever first appeared in Europe,

it was in a very malignant form, but between the years 1660 and 1670, a febrile disease attended with scarlet eruption was observed by Sydenham in a form so singularly mild, that nosologists have doubted its being really the same disease with that which had previously occurred. Dr. Cullen believed it was specifically different. Dr. Withering states, that in his early practice he considered scarlet fever and putrid sore throat distinct diseases, requiring distinct methods of treatment. More enlarged experience however compelled him to renounce that opinion; and he says, that after paying the most assiduous attention to the subject, by observing the disease in every difference of season, exposure, age and temperament, he was satisfied that they constitute but one species of disease;—that they owe their existence to the same specific contagion;—that the variations in their appearances depend upon contingent circumstances, and that their greatest differences are not greater than those of the distinct and confluent small-pox.

The scarlet fever attacks the skin, and some of the mucous membranes of the body, more especially the tonsils, and the mucous membrane in their neighbourhood. In mild cases there is *efflorescence* with little or no affection of the fauces. This constitutes the scarlatina simplex. In very severe cases there is extensive ulceration of the fauces attended with typhoid fever, but with little or no efflorescence. This form of disease is called cynanche, or scarlatina maligna. In common cases, both structures are impli-

cated, and the disease is then denominated *scarlatina anginosa*.*

The *scarlatina simplex* commences with slight febrile symptoms. The eruption appears on the second day, first about the neck and face in the form of innumerable red points, which in twenty-four hours or less cover the whole body. On the limbs, but especially about the fingers, there is a diffuse and continuous efflorescence, but on the trunk of the body the rash is distributed in irregular patches. The colour of the eruption is a bright scarlet, being always most distinct about the loins, and bendings of the joints. The efflorescence spreads over the surface of the mouth and fauces; and the papillæ of the tongue, which are always elongated, extend their scarlet points through the white fur which covers it, thus affording one of the simplest diagnostics of the disease. The face is often sensibly swelled about the third day. The febrile symptoms are in some cases very slight. At other times there is considerable heat of skin, restlessness, and frequency of pulse. The eruption continues about three or four days, after which a scurfy desquamation of the cuticle takes place.

In the more common form of the disease, the *scarlatina anginosa*, the precursory symptoms are more violent, and together with the cutaneous efflorescence,

* The most compleat description of the symptoms of *scarlatina* with which I am acquainted is that of Dr. Willan, which I have therefore availed myself of here with scarcely any alteration.

an inflammation of the fauces appears, going through its progress of increase and decline along with it. Among the first symptoms of this disease is an uneasiness in the throat. The voice is thick and deglutition difficult. The tonsils and fauces appear red and swelled as in *cynanche tonsillaris*. For the most part this goes on to the formation of superficial ulcerations or specks. When these are numerous, they cause an unpleasant fœtor, and the throat is much clogged up with a viscid phlegm.

In this more aggravated form of the disease the efflorescence seldom appears before the third day. It chiefly comes out in scattered patches, always very distinct about the elbows. Frequently too it vanishes, and reappears partially, and at uncertain times. About the third or fourth day from its first appearance it is generally gone, and extensive exfoliation of the cuticle begins soon afterwards to take place, and continues for ten days or a fortnight.

The febrile symptoms in this form of scarlet fever are usually very severe, and of a highly inflammatory character. The heat of skin is more intense in this than in any other fever of our climate. The pulse generally averages 120. There is always much restlessness, languor, head-ache, and oppression of the breathing. The decline of the disease however is often attended with marks of great debility.

The third form is that which scarlatina assumed in London in 1747, and which is so accurately descri-

bed by Dr. Fothergill. It is ushered in by rigors, attended with giddiness, acute head-ache, restlessness, faintness, a sense of heat and soreness of the throat, vomiting or purging. An efflorescence appears at different periods from the second to the fourth day, but it is seldom permanent. A remarkable tumefaction of the fingers sometimes takes place, which with the erysipelatous tinge they soon acquire, is often of itself sufficient to characterize the disease. In the throat appear dark sloughs surrounded by a livid base, and occasioning intolerable fœtor. The parotid glands swell, and become painful to the touch. The mouth is encrusted with a black or brown fur, and a viscid phlegm clogs up the fauces, so as even to threaten suffocation. The inside of the nostrils appears of a deep red or livid colour, from which a corrosive sanies flows, excoriating the angles of the mouth and cheeks. These symptoms are often accompanied by severe diarrhœa, with hæmorrhages from the nose, mouth and bowels. Those who escape these dangers, have afterwards to struggle through the extreme weakness left by the disease, and the diarrhœa, or hectic which often supervene. The accompanying fever is typhoid. The pulse is small, feeble, and irregular; and often from the very commencement, there is delirium or coma.

The only disease with which scarlet fever is liable to be confounded is measles. From this it is to be distinguished by the character of the eruptive fever, the colour of the efflorescence, and the affection of the fauces. Where measles however occurs compli-

cated with *cynanche tonsillaris*, as I have occasionally witnessed, the diagnosis may be difficult. The prognosis in scarlet fever when it assumes either of the latter forms should always be guarded. It varies of course with the degree of violence of the febrile and local symptoms. Some die as early as the third or fourth day. Some linger on till the second or even the third week, but generally it may be said that the patient is safe, if he passes the ninth day. The recession of the eruption is always an unfavourable symptom; but the whole history of scarlet fever proves that it is more a disease of mucous membrane than of the skin, and the danger is therefore to be estimated by the extent to which that structure is implicated.

Scarlet fever arises from a specific contagion which has a latent period of from four to five days. There is a peculiar susceptibility of it in infancy and youth. Sir Gilbert Blane observes, that he never saw a person turned of forty affected by it. It is not however upon the footing of small-pox and measles;—a disease that is to say, which almost every one passes through; for many individuals resist it, though exposed to the full influence of the contagion. A great controversy has taken place upon the question of secondary attacks of scarlet fever. Dr. Withering and Dr. Willan never witnessed a recurrence of the disease. It has been satisfactorily shewn however that this does occur, and second attacks have often proved severe. Scarlet fever is commonly said to prevail chiefly in autumn, but it has been observed in all seasons of the

year. The *form* which it assumes in particular cases is partly to be attributed to the character of the epidemic, partly to external circumstances, and in part also to the constitution of the individual affected. It has been made a question, to what causes we are to ascribe the malignity of a particular epidemic. Season is said to have some influence, the inflammatory form of scarlet fever appearing in spring and summer, and the typhoid in autumn and winter; but no stress can be laid on this, for the disease has been observed at the same time in all its forms, in individuals of the same family. Upon the whole we must acknowledge, that the circumstances which determine the severity of the disease have never been satisfactorily explained, and perhaps they do not admit of it. It is not accurately known, at what period a convalescent ceases to be capable of communicating the infection. The power of infecting appears to continue a very considerable time; certainly a fortnight from the decline of the efflorescence, and probably as long as any desquamation of the cuticle takes place.

Nothing need be said regarding the treatment of the scarlatina simplex; but the principles which are to guide us, when the disease occurs in either of its severer forms, require considerable attention. They have given rise to much controversy, and were certainly not satisfactorily explained till within these few years. The treatment of scarlet fever is to be regulated in the first place by the character of the accompanying fever. Where inflammatory symptoms prevail, they are to be moderated; where the typhoid

disposition is manifest, the system is to be supported. To a certain extent indeed, it must be allowed that the character of the fever is under the controul of the practitioner, who by vigorous treatment at the onset may prevent many symptoms of malignancy or putrescency; but this principle is only of partial application, for he has no controul over the character of the epidemic. The other extreme however is equally to be avoided, which is regulating altogether the early treatment by the consideration of the *possible* symptoms which may arise. In a disease assuming such different forms as scarlet fever, the *existing* symptoms must be the guide of practice.

A consideration of the best means of diminishing the high excitement which prevails in the early stage of scarlatina anginosa, affords us a second general principle of treatment. At one time it was supposed that blood-letting was necessary; but experience has proved, that in the cold affusion we possess a means of controuling this state of disease, safer and equally effectual. We are indebted to Dr. Currie of Liverpool for this improvement in practice. The great heat of skin renders the cold affusion grateful to the patient. The disease prevails chiefly among children, in whom it can be applied with facility. In common cases of scarlet fever there is not that weakness which the necessary exertion would augment. There is no tendency to affection of the chest, as in measles, which the application of cold to the surface might aggravate. An ulcerated state of the throat forms no objection to its use. On the contrary, the

cold affusion frequently checks this symptom in the most remarkable manner. The repetition of the remedy at intervals, proportioned to the urgency of the symptoms is indispensable ; it may be safely applied whenever the skin is *hot* and *dry*. It cools the skin, abates thirst, diminishes the frequency of the pulse, the head-ache and the languor, and disposes to sleep.

Emetics have been strongly recommended throughout the whole course of scarlet fever, but they are not adviseable, except at the very onset of the disease. Moderate purging is greatly to be preferred, and yet a prejudice against it was long entertained, probably in consequence of observing the danger of supervening diarrhœa. This symptom is however often prevented by laxatives, and it is perhaps occasionally dependent upon inflammatory action of the mucous membrane of the bowels. Gargles of *inf: rosæ* are useful to wash away the vitiated mucus ; and a blister to the throat, or leeches, are adviseable when the swelling of the tonsils is very great.

In the malignant form of scarlet fever, treatment of any kind is of course less efficacious ; but several of the measures already recommended, may be had recourse to with a prospect of success. An emetic at the commencement of the disease has often proved of great service, and in some cases appears to have completely broken its force. Stimulant gargles, as of port wine, or of decoction of bark with tincture of myrrh are of considerable use. The bowels should be cleared by gentle doses of castor oil, but severe purg-

ing is dangerous. Saline draughts with nitre may be given at first, every four hours, but as the disease advances, it becomes necessary to support the patient with decoction of bark and acids, wine, opium and aromatics. In the severe epidemic which prevailed in the West Indies in 1787,* capsicum taken internally, and employed as a gargle, proved very serviceable. The cautions however formerly laid down when explaining the treatment of typhus apply here. Symptoms must be watched, nor must tonics be given upon the mere *theory* of their necessity. The convalescence from this disease is always very tedious, but it may be shortened by a judicious administration of bitters and cordials.

I have delayed to this period, all mention of a very remarkable phenomenon in the history of scarlet fever; —I mean the dropsy, which frequently succeeds it.† It generally takes the form of anascarca, but ascites has also been noticed. It as often succeeds the *mildest* as the severest cases. It occurs, on an average, upon the twenty-second day from the decline of the eruption, seldom earlier than the sixteenth, or later than the twenty-fifth. It is preceded for several days by languor, costiveness, and sickness. These symptoms frequently continue, accompanying a quick

* Vide Medical Communications, Vol. 2. page 363.

† The reader will find a classical paper on this subject, from the pen of the late Dr. Wells, in the Transactions of a Society for the Improvement of Med. and Chir. Knowledge, Vol. 3, page 167.

pulse. The urine is scanty, and often coagulates on heating. This species of dropsy sometimes proves dangerous from the occurrence of coma, but more commonly from thoracic symptoms indicating effusion in the chest.

In speculating on the nature of this affection, Dr. Wells decidedly inclines to the idea of its being inflammatory, and in this he is supported by the opinions of later pathologists. He argues that it is not owing to debility, for it often attacks those who are strong, and passes by those who are weak, its occurrence is confined to a particular period, though great weakness may exist before and after ; and lastly, it is often attended with a white tongue and a bounding pulse. But it must be admitted that its precise causes have never been clearly explained. The common method of treating this form of dropsy is by purging, squills, and digitalis. Some cases have lately been published pointing out the efficacy of bleeding. I have met with several cases, however, which appeared to indicate the propriety of bleeding and purging, but which resisted both, and ultimately yielded to bark and aromatic confection.

CHAP. VI.

THE MINOR EXANTHEMATA.

Urticaria, or Nettle-rash—Lichen—Roseola—Pemphigus—Frambæsia, or the Yaws—its symptoms and progress—Peculiarities in the Contagion of this Disease—Principles of its Treatment.

THERE are several kinds of eruption attended with fever, which have occasionally been mistaken for measles and scarlatina. They are all very trifling diseases, but they deserve some attention on the score of diagnosis. One of these is the febrile URTICARIA, or nettle-rash, a rare disease, of which a very scanty notice will suffice. It is preceded for two or three days by feverish symptoms. The eruption appears in the form of white elevations of the cuticle, similar to those produced by the stinging of nettles, and denominated *wheals*. It is very itchy, especially during the night, or on exposing the skin to the air while undressing. It continues about a week, occasionally fading during the day. In children it is brought on by the irritation of teething, and at different ages by disordered states of the stomach and bowels. Modifications of the febrile nettle-rash are induced in particular constitutions by certain articles of food, shell-

fish, almonds, or cucumbers. These cases are commonly attended with considerable disturbance of the stomach, languor, and oppression.* A gentle emetic, followed by a common opening draught, is all that is requisite in the treatment of the febrile urticaria.

A disease much more frequently mistaken for the genuine exanthemata is **LICHEN**, and in some cases the diagnosis is by no means easy. I have seen this disease commence by severe febrile symptoms, continuing for four or five days. The eruption consisted of distinct elevated pimples, of a reddish colour but inclining to purple, clustered, and very copious on the hands, and bendings of the wrist and elbow. It faded about the sixth day from its appearance. There is great variety however in the symptoms and progress of lichenous eruption, and it is sufficient here to have alluded to the disease. It is not contagious. It is taken indiscriminately by those who have, and those who have not passed through measles, or scarlet fever.

A rash has been described by different authors as occasionally occurring in connexion with febrile complaints, to which Dr. Willan has given the name of **ROSEOLA**: It differs from Lichen in being a mere efflorescence of a rose-colour without papulæ. One of the most common varieties of it is that which

* These and the subsequent remarks on Roseola are taken from Bateman's Practical Synopsis of Cutaneous Diseases. London, 1813.

precedes in many cases the eruption of modified and inoculated small-pox. A similar eruption has been noticed as occurring during summer, in persons, especially females, of irritable constitution.

Nosologists have described a *vesicular* eruption attended with fever, to which they have given the name of PEMPHIGUS. It is very questionable whether such a disease exists. There is a *chronic* vesicular disease called by some pemphigus, and by others *pompholyx*, but there is no chance of confounding it with any of the exanthemata. The vesicles in this disease are of the size of walnuts. It often lasts a month or six weeks, and appears to be owing to a *cachectic* state of body. Medicine, as far as I judge from my own limited observation, has very little power over it.

FRAMBÆSIA, or the Yaws, deserves to be placed amongst the exanthemata, because, first, it can be taken but once in life, and secondly, it is propagated by specific contagion. It differs from them in having no fixed course, but wearing itself out in a longer or shorter time. It may be considered therefore as the link uniting the febrile exanthemata to the chronic cutaneous diseases, porrigo, scabies, and lepra. Frambæsia is endemic in Africa and the West Indies, prevailing chiefly among Negroes; but Europeans sometimes take it. It is preceded by more or less constitutional disturbance, amounting in some instances to fever. An eruption of small pimples then follows, increasing for ten days, when pustules form. To these succeed loose irregular crusts, beneath

which foul sloughy ulcers are to be found, which gradually shoot out a fungus, resembling in size and appearance a mulberry. This occurs at irregular periods, sometimes as early as one month, sometimes as late as three from the appearance of the eruption. The disease in about eight months wears itself out. The fungus contracts, and except where the inflammation ran very high, cicatrizes without leaving any scar. The general health is but little, sometimes not at all impaired in the progress of the disease. It is not a disease of danger.

The yaws arises from a specific contagion, the latent period of which is seven weeks.* It may be propagated by inoculation, but the disease is not thereby rendered milder or shorter. In Africa it is usually undergone, like the measles in this country, during childhood. It is altogether beyond the reach of medicine. Like the small-pox, it must run its course, and will leave the constitution when, after completing its various stages, it removes the susceptibility to future infection. Towards its decline it appears to be somewhat benefited by sarsaparilla, bark and acid, and a generous diet.

* See Edin: Med. and Surg. Journal, July 1819,—Article by Dr. Thomson.

CLASS III.

PHILEGMASIÆ, OR INFLAMMATORY DISEASES.

CHAP. I.

GENERAL DOCTRINE OF INFLAMMATION.

Universality of Inflammation—Symptoms of external Inflammation — Pain, heat, redness, swelling — Symptoms of internal Inflammation — Pain, disturbed function — Fever, buffy blood—terminations of Inflammation—Resolution, suppuration, gangrene — Effusion, and thickening of structure—Causes of internal Inflammation—Mechanical and Chemical irritants—Cold—Morbid poison and contagion—Metastasis.

EVERY organ and structure of the body is liable to inflammation, an important subject of enquiry, involving several considerations which it will be proper to begin by stating in a general way. There are certain phenomena for instance observed to attend it whatever be the organ or structure attacked. The causes of inflammatory action also are very much the same, whatever part of the body be its seat. The symptoms, terminations and causes of inflammation therefore constitute its fundamental doctrines, and this chapter will be devoted to their consideration.

In the next I shall advert to the *varieties* of inflammation, whether occasioned by differences of cause, or of function, or texture of the part affected. Some remarks on the *theory* of inflammation and the principles of its treatment will conclude the enquiry into the general doctrine of *acute* inflammation. Much interest however has lately attached to the subject of *chronic* inflammation, and it may not be foreign to our purpose to offer, in conclusion, a few remarks on that state of disease, such as may be sufficient to point out its principal pathological features.

When any part of the body which is obvious to our senses becomes inflamed, such as the skin, the tonsil, or the eye, there are four alterations from the healthy state of the part which become manifest. These are pain, heat, redness, and swelling. It is not any one of these symptoms singly, but their combination which marks the existence of inflammation. The stomach may be painful from distension. The skin may be hot from fever. The cheek may be red from blushing. The breast may be swelled from the flow of milk. To determine how far each of these symptoms is to be considered an evidence of inflammation is an object of some importance.

1. A certain degree of pain attends every deviation from health. Pain arises from spasm, fatigue, distension, sympathy, irritation, and along with other symptoms it is an important criterion of *inflammation*. At first the pain attending inflammation is acute,

or lancinating; afterwards it is a *throbbing* or pulsatile pain, and these varieties of pain indicate different stages in the process of inflammation. The kind and degree of pain in particular cases appears to be proportioned rather to the facility of distension in the part than to the quantity of nerves with which it is supplied.

2. The heat of an inflamed part is the least important and the most frequently wanting of all the characters of inflammation. It never can exceed that of the blood at the heart. It is most conspicuous therefore when inflammation attacks a part at the greatest distance from the centre of circulation; such as the great toe in gout, or the point of a finger in whitlow. There is no reason to believe that increased heat occurs in the inflammation of internal organs.

3. Increased redness of a part, if permanent, is nearly decisive of the existence of inflammation. We find it after death to have occurred equally in cases of internal inflammation. It is obviously owing to one of two causes, or perhaps to both; the enlargement of old vessels, or the growth of new ones.

4. Swelling is an accidental symptom of inflammation, attributable to the degree of looseness in the structure and connections of the part. Generally speaking therefore, where there is least swelling there is most pain. Some structures of the body inflame without any swelling at all.

Such are the signs of external inflammation ; but the physician has not, for the most part, the advantage which the surgeon possesses, of judging by the eye of the existence of inflammation. The symptoms of internal inflammation are more obscure and require more minute investigation. It is judged of in two ways, by local and by constitutional symptoms. The local symptoms are pain increased on pressure, and disturbance of function ; the constitutional, fever, and buffiness of blood. 1. Pain is the most important of them all ; but in order to characterize it as the pain of inflammation, it must be *increased on pressure*. The test of pressure cannot however be applied in all cases, as in inflammation of the brain and bronchia, where a bony or cartilaginous case defends the inflamed structure. Pain again is not essential to constitute inflammation. Where the affection therefore exists in an organ of very loose texture, there is little or no pain felt, as in peripneumony. Many cases even of inflamed peritonæum and pericardium have proved fatal without any such inconvenience being produced, as warranted the suspicion of inflammatory action.

2. Disturbance of function is almost a necessary concomitant of inflammation, and wherever the function of an organ is understood, we may judge of the extent of inflammation in it by the degree of disturbance which its function undergoes. The particular symptoms referable to this head, are of course as various as the organ attacked. Delirium marks inflammation of the brain. Impatience of light, ophthal-

mia. Hoarseness, inflammation of the larynx; and dyspnœa that of the lungs. There are only a few cases on record of inflammation existing in a part without disturbing its function.

3. Fever more or less urgent accompanies every kind of internal inflammation. In degree it varies from the slight febricula which attends catarrh to the highest grade of inflammatory fever, such as is witnessed in phrenitis. It differs no less in kind than in degree. At one time it is inflammatory, at another typhoid; in one instance it has a *hectic*, in another a *remitting* character. It may be held as a general rule, that the degree of local inflammation may be estimated by the violence of the constitutional symptoms; but at the same time it must be borne in mind, that the degree of fever present in any individual case, does not always bear a proportion to the importance of the organ affected, or the extent of local disease. It may run as high in cynanche tonsillaris, as in a severe attack of pleurisy, and frequently appears to be measured by peculiarity of constitution. Some persons, reasoning from these data, have argued, not without an appearance of reason, that the fever accompanying local inflammation is not always a secondary affection;—that in cynanche tonsillaris for instance, it is not the swelling of a small and insignificant gland which raises the pulse to 120, but that fever is the primary affection which from some unknown cause induces the local inflammation. Where neither the constitutional nor the local symptoms are urgent, it is

common with some physicians to employ the term *sub-acute inflammation*. In a pathological point of view nothing is gained by its adoption, but practically it is of some use, as for instance, in distinguishing and directing the treatment of some cases of bronchial and rheumatic inflammation.

4. The last proof of the existence of internal inflammation is derived from the appearance of the blood drawn. All ages and countries have agreed in looking upon buffiness of the blood as a test of inflammatory action; but different ideas have been entertained as to the degree of importance which should be attached to it. Boerhaave and the followers of his school considered it as the decisive argument in favor of that *lentor* or spissitude of the blood, on which they believed inflammation to depend. Of late, physicians have rather been inclined to undervalue it as a symptom of inflammation. Upon a careful review however of all the arguments which bear upon this question, I am satisfied that buffy blood is a very important criterion of the presence of inflammation. Genuine inflammation indeed sometimes exists without it; and the first cup of blood may be buffy when the last is not. These and other anomalies are interesting in a practical point of view, but they do not affect the general question of the pathological importance of buffiness of blood.

The cause of this appearance is involved in great obscurity. It has been supposed to depend upon the slower coagulation of blood; but something more is

required than this, for blood may coagulate slowly and not be buffy. That blood will prove buffy, may often be predicted from the appearance which it exhibits while still flowing from the arm.

The progress of inflammatory action, an important subject, which next claims attention, is generally, but somewhat inaccurately described, under the title of the *terminations* of inflammation.

1. When an inflamed part gradually regains its healthy state without any derangement of structure, the inflammation is said to terminate by *resolution*. This is invariably the object of the Physician, but the Surgeon's object might be defeated by it, for he not unfrequently excites inflammation with a view of profiting by some of its subsequent stages. We judge of the tendency to resolution by the *gradual* giving way of the symptoms of inflammation, particularly by the diminution of pain and fever.

2. The second stage or termination of inflammation is *abscess* and *ulceration*. This subject opens an extensive field of enquiry, but it falls more properly within the province of the surgeon. By John Hunter and others, the different topics which it embraces, more particularly the nature of ulcerative action, have been investigated with great success; and among other points that remarkable analogy has been urged, which subsists between pus and a secreted fluid, an ulcerating and a secre-

ting surface. The formation of pus by internal inflammation, exhibits nothing different from what takes place where the inflamed texture is in contact with the air. The symptoms by which we judge of supuration having taken place in an internal organ are the following:—1. The change from the lancinating to the throbbing pain. 2. A sensation of weight or fulness in the inflamed part. 3. The pulse continuing frequent, but becoming soft and full. 4. The occurrence of rigors.

3. The third stage of inflammation is sphacelus or *gangrene*. It is but very rarely that the physician takes cognizance of this state of disease. The tendency to gangrene is sometimes given by the extreme violence of the first stage of inflammation. But as it often shews itself early, and without any particular violence of the first stage, it must be ascribed in some cases, secondly, to a septic tendency in the disease itself, as in the case of plague. Thirdly, in many instances the disposition to gangrene is independent of the *nature* or *violence* of the inflammation, and is obviously referable to the peculiar constitution of the patient. The symptoms of internal gangrene are:—1. The sudden cessation of pain. 2. A sinking and irregular pulse. 3. A change of the expression of countenance from that of febrile anxiety to exhaustion. 4. Delirium.

4. Among the terminations of inflammation we rank *effusion*; and this may be either of coagulable lymph, forming adhesions as in pleurisy, or adven-

titious membrane, as in croup ; or of serum, as in hydrocephalus and peripneumony ; or of a peculiar gelatinous fluid, as in rheumatism ; or of a saline matter, as in gout. The secondary effects of these terminations of inflammation will be different according to the organ and structure affected. Adhesions from pleuritic inflammation are productive of but little inconvenience. Occurring in peritonæal inflammation they lead to incurable marasmus or ileus. The effusion of serum from inflamed vessels, and consequent dropsy, is a piece of pathology of great practical importance, to which we shall hereafter have frequent occasion to refer.

5. Closely allied to effusion is the only other effect of acute inflammation, which it is necessary to notice here ;—*thickening of structure*. This is exemplified in a great variety of instances ; in inflammations of the dura mater, and periosteum ;—of the arachnoid and peritonæal membranes ;—of the mucous membrane of the bronchia and larynx ; and perhaps also in inflammation of the heart ; but this, with some other less familiar terminations of inflammation, will be afterwards noticed under the head of chronic inflammation.

As external inflammation falls, with only one or two exceptions, within the province of Surgery, I beg leave to refer to the elementary works on that science for a detail of its causes. Here I shall confine my attention to the causes of internal inflammation, and of those few forms of external

inflammation which come under the care of the Physician. With respect to the remote or predisposing causes little need be said. Inflammatory affections occur in all climates, and to all ages, temperaments, and conditions of body. The only general rule that can be laid down perhaps is, that a full habit of body, and a plethoric state of vessels, gives a predisposition to inflammation; and yet to this rule we meet with daily exceptions. It used to be said that a *tense fibre* predisposed to inflammation, but independent of the difficulty of judging of this state of constitution, it is very questionable whether the assumed position be correct. With respect to the *exciting* causes of internal inflammation, it may first be stated, that occasionally, as in some cases of hydrocephalus, we can form no conjecture as to the true cause of the complaint, but, at other times we can define it with considerable certainty; and among the most important causes of internal inflammation will be found the following;—mechanical and chemical irritants; cold; a peculiar habit of body, formerly supposed to be a depraved state of the blood and humours; the presence of a morbid poison, contagion, and metastasis.

1. Mechanical and chemical irritants. The phrenitis of infants has been traced to the irritation of teething; gastritis to poison; enteritis to the presence of hardened fæces; nephritis to calculus in the kidney; ophthalmia to dust and sand; erysipelas to leechbites, or the distension of the skin from dropsy.

2. Cold is the most important of all the exciting causes of internal inflammation. There is scarcely any form of it which does not occasionally owe its origin to cold; and many inflammatory affections, as rheumatism and pleurisy, have no other cause of the smallest practical importance. The period of time that elapses between the application of cold and the occurrence of inflammatory symptoms is subject to great variety. In the case of sore throat, it often follows in the course of a few hours. In that of acute rheumatism, a week, or even a fortnight, has been known to elapse. What the circumstances are which direct the inflammation upon one organ or structure rather than another, may be gathered, to a certain extent, from what has already stated when treating of fever; (Pages 33 and 40). In what *manner* cold operates as the cause of internal inflammation, has been a constant subject of enquiry with all pathological writers, but it is still involved in the greatest obscurity.

3. Some forms of inflammation, which to a superficial observer might appear to arise without any assignable cause, have their origin in a peculiar state of body, the nature of which is not always understood, but which the older Physicians supposed to consist in some morbid state of the fluids of the body. This piece of pathology is exemplified in the phenomena of gout; in the inflammation of absorbent glands, occurring in scrophulous children on the approach of winter; and in the pustular eruptions to which young persons are subject about the age of puberty.

The presence of *fever* unquestionably leads to local inflammation, and hence it is, that in the progress of typhus, thoracic or abdominal inflammations so frequently supervene.

4. The presence of a morbid poison in the system is a frequent occasion of internal inflammation. This principle we have already had ample opportunities of illustrating in the phenomena of the plague, small-pox, measles, and the other exanthemata. It is equally exemplified in those of secondary syphilis, where the inflammation of the fauces, or of the iris, or of the joints, is obviously attributable to the presence of a morbid poison. Closely allied to this, in a pathological view, is the important but well ascertained fact of the origin of many inflammatory affections from contagion. There is a species of contagious catarrh. Two species of cynanche are contagious. There is a contagious form of ophthalmia. Erysipelas is contagious under certain circumstances; so in all probability is dysentery. There is reason to suspect that one of the forms of peritonæal inflammation is occasionally propagated in the same way.

5. The last cause of internal inflammation which it will be necessary to notice in this general view of the subject is *metastasis*, or the translation of inflammation from one organ or structure to another. This is a very curious point in pathology, sufficiently established indeed as a matter of fact, but the reasonings concerning which are hitherto very obscure and

imperfect. It is exemplified in the ophthalmia which succeeds gonorrhœa; in the inflammation of the testicle which succeeds the mumps; in the inflammation of the pericardium which succeeds rheumatism. In what manner the metastasis is effected has never yet been developed. It appears however that to *sympathy from similarity of structure* something may be referred; for in almost all cases of metastasis, it will be found that the structures primarily and secondarily affected have an affinity to each other.

CHAP. II.

GENERAL DOCTRINE OF INFLAMMATION.

(CONTINUED.)

Varieties of Inflammation—from the situation and function of the part affected—from differences of texture—by whom first investigated. Inflammation of Cellular Membrane and Parenchyma—of Serous Membrane—of Mucous Membrane—of the Skin—of Fibrous Membrane —Varieties of Inflammation from Differences of Cause—Theories of Inflammation—Agency of Blood-vessels—of Nerves—Question as to Differences in the Nature of Inflammatory Action—General system of treatment in Acute Inflammation—in the states of Suppuration and Gangrene.

THE study of the varieties of internal inflammation is no less important, in a practical as well as pathological point of view, than that of the great features of *resemblance* which all inflammations bear. Some of these have been long known to, and amply described by, medical writers. Others have only attracted attention in the course of the last twenty or thirty years, and are not yet described with that accuracy of which the subject is susceptible, and which, from its application to practice, it requires. The specific distinctions among inflammations may be reduced to the three following ;—1. The situation,

and function of the part inflamed. 2. The structure of the part inflamed. 3. The exciting cause:

1. The first source of variety in inflammatory affections is, the situation and function of the organ inflamed. This is an obvious practical distinction; and it was accordingly noticed by all the oldest writers on physic. It is but of small importance however in a pathological view, for an organ is composed of different parts or textures, and each of these is liable to an inflammation which exhibits some peculiarities. Though on common occasions therefore it is sufficient to speak of inflammation of the eye, or of the lungs, or of the bowels, yet in a scientific enquiry, it is necessary to be more precise, and to speak of inflammation of the conjunctiva, or of the iris, or of the tarsi; or to mark a distinction in the other cases by the terms, pleurisy, peripneumony, inflammation of the peritonæum, or of the mucous membrane of the intestines.

2. The second and by far the most important of all the sources of distinction among inflammations, is to be found in the structure of the part inflamed. Every part of an animal body, the cuticle and hair excepted, is subject to inflammation, and according to its structure, is the inflammation modified, both in symptoms and termination. To a certain degree therefore the treatment must also be modified by the same cause. The fundamental textures of the body have been reduced by physiologists to five;—cellular membrane, serous membrane, mucous membrane,

skin, and fibrous membrane. For a long time this subject was either altogether overlooked or but very slightly attended to by physicians. Dr. Carmichael Smyth is, I believe, the first who wrote expressly upon it.* His views are very ingenious, though subsequent observation has corrected some and enlarged others. John Hunter followed, but his merit in this path of enquiry is very inferior to that of Bichat, who has perhaps refined rather too much upon it. A very slight sketch of the pathological doctrines which it embraces is all that is consistent with the plan of this work.

1. That texture of the body which is the most generally diffused is cellular membrane, under which head physiologists include not merely the membrane strictly so called, but the parenchyma of the different solid viscera and glands, which consists of cellular membrane connecting a congeries of minute blood-vessels and nerves. The inflammation of cellular membrane is called phlegmonous or *common* inflammation, and its peculiarities are probably referable to the lax texture of the part, and the size of its arteries. Phlegmonous inflammation is distinguished by the great swelling which attends it, by its throbbing pain, and by its tendency to circumscribe itself and ultimately to form *abscess*. The process by which phlegmonous inflammation is circumscribed has never been accurately explained. It appears to

* Vide "Medical Communications." Vol. 2, page 168. London 1788.

consist in the effusion of coagulable lymph, uniting the cells together, and becoming afterwards the walls of the abscess. To this order of inflammations belong peripneumony, cynanche parotidœa, nephritis, and some others.

2. Serous or diaphanous membranes are distinguished by a degree of transparency, by their firm and close texture, and by their function—the secretion of a serous fluid. The great serous membranes of the body are the tunica arachnoides, the pleura, pericardium and peritonæum. Though possessed of little sensibility in the healthy state, these membranes are the seat of acute pain when inflamed. Lancinating pain therefore is the first character of *serous inflammation*. It is attended by a *hard* and *wiry* pulse, and a remarkable whiteness of the tongue, but for the most part without corresponding febrile debility. The peculiar terminations of this variety of inflammation are the exudation of coagulable lymph forming præternatural adhesions,—the effusion of serum into the cavities lined by the membranes, forming dropsy; and occasionally the secretion of pus. It was at one time a matter of doubt whether pus could be formed except by the sides of an abscess, or by an ulcerated surface, but it is now well understood, that both serous and mucous membranes in a state of inflammation occasionally throw out true purulent matter.

3. The mucous membranes are those which line the various passages and cavities of the body which

have an external outlet, and which secrete mucus for the protection of their surface from the air, or the acrimony of the fluids which may come in contact with them. This surface is *villous*, and interspersed with the orifices of glandular follicles. There are three great tracts of mucous membrane,—those viz : of the larynx and bronchia; of the stomach and intestines; of the urethra and vagina.

When a mucous membrane inflames, its natural secretion either ceases or becomes depraved, appearing thin, acrid, *puriform*, or even purulent. It acquires an increase of irritability, but the pain which is present is slight in comparison of that experienced from the inflammation of a serous membrane. The fever which attends it is, in like manner, seldom of so acute a kind, but it is sometimes accompanied with a remarkable degree of *debility*, which continues through a protracted period of convalescence. In respect of termination, a curious difference exists in the different tracts of mucous membrane, attributable probably to some peculiarity in their anatomical structure. The intestinal tract is remarkably prone to ulceration, and the rapidity with which it runs into this state is worthy of note. The membrane lining the trachea throws out during inflammation coagulable lymph; that of the urethra, pus. Lastly, thickening of structure is a frequent effect of inflammation in a mucous membrane. These and other characters of *mucous inflammation* we shall afterwards illustrate more fully, when treating of ophthalmia, catarrh, bronchitis, and dysentery.

4. Closely allied to the mucous membranes in point of texture and function is the skin, and the inflammation of this structure is attended with some interesting peculiarities. The phenomena of small-pox prove that the skin is susceptible of phlegmonous inflammation, but the genuine inflammation of the skin has peculiar characters, which have acquired for it the name of erythematous, or more properly of *erysipelatous* inflammation. It is characterized, like phlegmon, by pain, heat, tension, and redness, but instead of a tendency to circumscribe itself, its disposition is to spread; instead of abscess, it goes on to the formation of *vesicle*, and it often occurs in *exhausted* states of constitution. The membrane lining the mouth and fauces being covered by a cuticle may be considered as a continuation of the skin. It is susceptible of erysipelatous inflammation, leading, especially in children, to the formation of those vesicles known by the name of *aphthæ*. The inflammation produced by blisters, burns, and scalds, and the areolæ of small-pox and cow-pox, are instances of erysipelatous inflammation. Closely allied to it also in their nature, are the eruptions of measles and scarlet fever. The true seat of the redness in all these cases is the vascular net-work called *rete mucosum*, the vessels of which in the healthy state do not carry red blood. In the facial capillary system, however, their *disposition* to receive red blood is very great, as is manifest in the phenomena of blushing. On this principle we account for the fact that the exanthematous eruptions begin about the face and neck; that erysipelas is so much more common and dangerous in the face than in any other part; and as was

formerly mentioned, that small-pox is most liable to become *confluent* on the face.

5. The last structure which demands attention is that of *fibrous* membranes, a class of membranes whose physiological relations were first investigated by Bichat. It must be admitted, that in this arrangement there is some mixture of hypothesis, but there appears to be a foundation for it in nature. Fibrous membranes have a dense structure, and they do not exhale. They have the periosteum for their base. The dura mater, tendinous and aponeurotic expansions, and capsular ligaments come under this head. Synovial membranes are usually classed by physiologists with the serous, but in a *pathological* view they may without impropriety be considered here.

Inflammation of fibrous membranes is commonly called rheumatism, or *rheumatic inflammation*, the peculiarities of which have been very long known. It differs from common inflammation in several points. 1. It never terminates in abscess, or adhesion, or gangrene, though the local symptoms be ever so severe; but it is followed by gelatinous exudation, or earthy or saline deposition about the sheaths of tendons, and the ends of bones, impeding the motion of the parts. 2. It is generally slower in its progress than the inflammation of other structures. 3. It has a remarkable tendency to sudden shiftings, or metastasis. 4. The accompanying fever has a peculiar character, which will hereafter be pointed out: the

functions of the brain, for instance, are never affected in it. 5. It scarcely ever proves fatal.

Such are the chief structures of the body, and such the respective characters of the inflammation which attacks them. It remains to be stated, that the exciting causes of inflammation exert a considerable influence over the character of the disease. Thus inflammation of the tunica conjunctiva exhibits different appearances, according as it originates from cold, or from contagion. Inflammation of the tonsils has a different aspect when it arises from the presence of the venereal virus in the system, from that which it assumes when it is owing to cold, or the contagion of scarlatina. The practitioner of experience can indeed often ascertain the cause, by observing the *appearances* of the disease.

Many theories of inflammation have been proposed ; many attempts, that is to say, have been made to explain the precise nature of inflammatory action. But inflammation is an action peculiar to life. It is on a par with secretion, and absorption ; and if we cannot unfold the nature of the healthy vital actions, it is not surprising that pathologists have failed in explaining those which occur in disease. It is pretty well agreed that inflammation is a morbid action of capillary vessels. This portion of the great circulating system appears to act a very important part in almost all the operations of the animal body. The capillaries are probably the organs mainly concerned in

secretion and the growth of parts, and possibly also in absorption; but the whole subject of the functions of the capillary system is exceedingly obscure. Bichat appears to have considered it as altogether beyond our reach. Uninfluenced by these considerations, many modern pathologists have attempted to define accurately the state of the capillary vessels during inflammation. Some imagine they are in a state of increased action; others believe that in part of their course, at least, there is a spasmodic constriction; while a third class of pathologists maintain, that during inflammation the action of capillary vessels is diminished. Into the merits of these different theories I have no intention to enter, after the opinion which I have expressed as to the almost impenetrable obscurity of the subject. The theory of *increased action* of the capillaries is, upon the whole, that which is likely to prove the most useful guide in practice; and though by no means free from objections, will, with these reservations, be employed hereafter wherever any such may be required.

In the common theories of inflammation, every thing is attributed to the agency of blood-vessels. It may be a matter deserving of some enquiry, how far the nerves are concerned in inflammatory action. Several circumstances tend to the notion, that a buffy state of the blood is a phenomenon depending on nervous influence; but it would be out of place to enter upon this question here. A doubt has been expressed, whether differences of anatomical structure are sufficient to explain all the diversities which we

observe in inflammatory action. It has been suggested, that is to say, that there may be differences in the *nature* of inflammatory action ; that the same set of vessels may at one time be in a state of phlegmonous, and at another of erysipelatous, or rheumatic inflammation. This refinement, however, appears to be unnecessary.

The general principles of treatment in inflammation admit of being laid down with some accuracy, but they are of course varied by many circumstances, among which the most important are the period or stage of the disease ; the exciting cause, and the structure of the part inflamed.

1. In the early stages of acute internal inflammation, the *indication of cure* is to diminish the action of vessels. This is to be effected by venesection, purging, and refrigerant medicines ; occasionally also by emetics, blisters, and the local application of cold. The choice of the particular means for the fulfilment of this indication, in the different inflammatory affections of the body, will be a principal object of enquiry hereafter. When suppuration is established, moderate evacuations may sometimes be proper, and even rendered necessary by the urgency of a particular symptom ; but the mischief being now done, the object of the practitioner is to support the strength of the patient rather than to exhaust it. Internal gangrene being so rarely an object of treatment by the physician, it is only necessary to remark in this place, that it requires the exhibition of wine and other cor-

dials. For the treatment of external gangrene, and, generally speaking, for the treatment of external inflammation, I must refer to works on Surgery, where this subject is fully treated, it being the most important of all those which occupy the attention of the surgeon.

2. The treatment of internal inflammation is modified by the exciting cause. Scrophulous inflammation of the absorbent glands, and inflammation of the periosteum or fauces from the venereal virus, require a peculiar treatment, adapted to the circumstances of each case.

3. To a certain degree the part inflamed affects the treatment. Inflammation of a serous membrane demands the copious and rapid abstraction of blood. That of mucous membranes does not bear the same extent of evacuation, nor does it so often require it. Erysipelatous inflammation is often successfully treated by bark, and acids. Rheumatic inflammation is under the controul of certain drugs, which have no effect upon, or which prove absolutely prejudicial in, common inflammation;—I mean colchicum and opium.

Such are the general outlines of the management of acute inflammation, under its several modifications. The subject is as important as it is extensive; for in inflammatory diseases the value of medical treatment is more unequivocally manifested than in any other class of disorders, and the skill and resources of the physician are here most eminently displayed.

CHAP. III.

CHRONIC INFLAMMATION.

Diversity of structures affected by Chronic Inflammation—Chronic Inflammation primary and secondary—State of the constitution in this affection—Causes of primary Chronic Inflammation—Its nature and seat—Effects of Chronic Inflammation—Thickening of structure, Schirrus, Tumors, and Tubercle—Chronic suppuration—Prevention and treatment of Chronic Inflammation.

CHRONIC inflammation is a term frequently made use of, but I am not acquainted with any work in our language which may serve to point out the pathological considerations which it involves. On this account, though the subject is perhaps too obscure for investigation in an elementary work, I have thought it advisable to offer a few remarks concerning it; rather, indeed, with the idea of attracting the attention, than of satisfying the enquiries of the student.

Chronic inflammation occurs frequently, and in almost every variety of structure: in the lungs, where it lays the foundation of consumption: in the brain, liver, spleen, and kidney. All the serous and mucous

membranes of the body are subject to it; and in many cases it proves a most formidable affection, as in chronic dysentery, and catarrhus senilis. The substance of muscle appears to be the seat of inflammation in some forms of chronic rheumatism, the frequency of which disease shews that the fibrous membranes are in like manner affected. The skin is of all textures the least liable to chronic inflammation. This state of disease falls also within the observation of the surgeon. Gleet, inflammation of the prostate gland, scrophulous enlargements of absorbent glands, chronic ophthalmia, and ozena, or the chronic inflammation and ulceration of the schneiderian membrane, may be taken as instances.

One of the circumstances most deserving of attention in the pathology of chronic inflammation is, that it is sometimes a primary and at other times a secondary affection. By this latter term, it is intended to denote, that it succeeds acute inflammation; and this is the most common form in which it appears. It is thus that it occurs in gleet and dysentery. But at other times it is not preceded by any symptoms of active inflammation. It begins almost imperceptibly, and its advances are slow, often exceedingly insidious, being unaccompanied by any symptoms which could betray, even to the experienced practitioner, the existence of such a disease. No where is this better exemplified than in the case of some forms of chronic peritonæal inflammation; but the same thing has been observed also in cases of chronic in-

flammation of the membranes of the brain, and even of the heart itself. In these instances, not only are there wanting all local symptoms of inflammatory action, but there are not even any constitutional symptoms; at least none of sufficient importance to attract attention. This, however, it must be confessed, is comparatively a rare occurrence; and it is much more usual for chronic inflammation, both primary and secondary, to exhibit local and constitutional symptoms, less in degree, but the same in kind with those which accompany acute inflammation.

The local symptoms produced by chronic inflammation vary of course with the part affected. Sometimes, as in chronic laryngitis, there are local symptoms, but no affection of the constitution. When the general system is implicated, the symptoms are usually those of fever. The pulse is quickened; there is a white tongue, thirst, and some degree of restlessness. Occasionally, however, in a state of chronic inflammation, the tongue is clean, there is no thirst, but the pulse is feeble and languid, the extremities are cold, and the slightest exertion occasions fatigue, general uneasiness, and pain across the loins. All these symptoms mark a state, not of fever, but of atony and debility. The term *asthenia* has been applied with much propriety, by some pathologists, to express this state of the general system. Many of the protracted cases of bronchial inflammation, particularly those which occur in old people, exhibit, in the greatest perfection, the characters of *asthenic inflammation*.

The causes of *primary* chronic inflammation are involved in great obscurity. There is reason to suspect that cold has sometimes induced it ; or mechanical irritation, as in the case of chronic inflammation of the brain, from spiculæ of bone ; but it is seldom that we can attribute the disease to so obvious a cause. A scrophulous habit of body appears to favour the disposition to chronic inflammation, but it often occurs, where it would be mere hypothesis to attribute it even to that obscure source. What the particular state of body may be, which leads to the affection in such cases, is in all probability inexplicable.

The nature of that action of vessels in which chronic inflammation consists, has been long an object of research. By some, it has been defined to be that state of increased action of vessels, which is neither so far subdued as to tend to resolution, nor so violent as to form abscess ; but this goes only a little way in explaining the difficulty. From the appearance of the eye in some cases of chronic ophthalmia, and from the effects of the *juvantia* and *lædentia* in this and many other instances of chronic inflammation, it would seem probable that a *relaxation* of vessels prevails, rather than any increase of their action. It must be confessed, however, that this object of enquiry is obscure ; and perhaps the truth, if it could be obtained, would be found of no practical application. In France a doctrine obtains, that chronic inflammation has its seat in two distinct orders of vessels, *sanguiferous* and *lymphatic capillaries* ; but

as this piece of pathology has never been received in this country, it will not be necessary to enquire into its merits.*

The effects of chronic inflammation, or, more correctly, the local appearances presented during the state of chronic inflammation, vary with the texture of the part affected. A simple thickening of structure is a common appearance, both in serous and mucous membranes. Sometimes the thickening assumes the form which has been called *tuberculated accretion*. In serous membranes it leads to the extensive union of surfaces. *Schirrus* is generally accounted the effect of chronic inflammation in a glandular organ.

The origin of *tumours* in different structures is a subject that has excited much attention among pathologists. In many cases it is presumed that their growth is referable to the same action of vessels by which all parts of the body are formed; but in other cases, there is reason to believe that they may have had their origin in a state of chronic inflammation of vessels. Closely allied to tumours are *tubercles*; but the views which are entertained by pathologists of the origin and progress of tubercle, will come better

* In a late essay by Dr. Baron, of Gloucester, on "Tuberculated Accretion of the Peritonæum," an ingenious attempt has been made to introduce into pathology a principle of *lymphatic irritation*, not dissimilar, probably, to that adopted by the French pathologists. This author rejects altogether the notion of such a morbid action of vessels as that to which the term Chronic Inflammation could be applied.

under discussion hereafter, when treating of pulmonary consumption.

The last effect of chronic inflammation which I shall notice is *suppuration*, and it is one of those which we have most frequent occasion to witness in practice. The fact of the formation of purulent matter in cysts and other structures, without any evidences of previous inflammation, was well known to John Hunter, who had particular views of his own regarding it. But they are very unsatisfactory ; and until further light is thrown upon the subject, it may not be improper to consider these collections of matter as the result of chronic inflammation.

To some, the subjects which have now been discussed may appear too indefinite and obscure to be legitimate objects of investigation, particularly in an elementary work. To this I would reply in the energetic language of Bichat,* “ that in explaining the animal economy, it is doing much to indicate analogies ; to shew the uniformity of an unknown phenomenon with another about which all the world are agreed.” “ In every branch of science,” adds this author, “ it would be well if the principle was thoroughly appreciated—that nature, greedy of her means, is prodigal of results ; that a small number of causes every where preside over a multitude of effects, and that the greater part of those about which we are

* *Traité des Membranes.* Page 189.

doubtful, are referable to the same principles with others which appear to us evident."

The treatment of chronic inflammation is very little understood. It is often said, that parts which have been much weakened, especially by large bleeding during the acute stage, are liable to fall afterwards into the state of chronic inflammation. I believe however that the remark is not of general application, and that this form of disease is oftener attributable to a neglect of those vigorous measures which would have cut short the acute stage of inflammation at its commencement. Chronic inflammation is almost as much out of the controul of medicine as acute inflammation is under it. Nature sometimes works a cure, but in many cases, more particularly of primary chronic inflammation, the prognosis is very unfavourable.

The general system of treatment must depend upon the state of the constitution. Four plans of treatment have been advised, and each has been found serviceable under different circumstances.

1. Where fever is present, blood-letting, purging, and saline medicines, with a low diet, are to be recommended.

2. Where the pulse is feeble, and there is a decided loss of tone in the system, myrrh, benzoin, the balsam of copaiba, steel and bark, are unquestionably useful.

3. Where the disease is purely local, it is best treated by leeches, blisters, and issues, upon the principle of counter-irritation.

4. Where these means fail, an *alterative* plan of treatment may be resorted to. This is done under the idea of giving a new action to the vessels. Upon this principle, mercury is employed in the treatment of chronic hepatitis, alkalis in the scrophulous inflammation of absorbent glands, and sarsaparilla and guaiacum in chronic rheumatism.

CHAP. IV.

PHRENITIS AND HYDROCEPHALUS.

Idiopathic Phrenitis—Symptomatic Phrenitis—First notices of Hydrocephalus—its several stages described—variety in the symptoms—duration of the disease—prognosis—diagnosis—appearances on dissection—pathology—Treatment of Hydrocephalus—Remarks on the Chronic and Congenital Hydrocephalus.

PHRENITIS, or acute idiopathic inflammation of the brain or its membranes, is a disease of formidable character, but of rare occurrence. It is characterized by the following symptoms; violent inflammatory fever, redness of the eye and face, intolerance of light and sound, great head-ache, with restlessness, and above all, early and fierce delirium. It has occurred idiopathically, more particularly in hot climates, and been ascribed to great fatigue, under exposure to the rays of a vertical sun. Occasionally it has appeared to originate in anxiety of mind, or the excessive use of spirituous liquors in a plethoric habit of body. Genuine phrenitic inflammation occurs as a consequence of erysipelas of the face, but upon the whole, it is much more commonly the result of external injury, and therefore more the object of attention with the Surgeon than the Physician.

When the dura mater is inflamed, effusions of coagulable lymph sometimes take place, and adhesions form; but these appearances are very uncommon. Pus is more usually found covering a portion of the membrane, or it is eroded by ulceration, but the last occurrence is by no means frequent. Inflammation of the pia mater, when it runs high, generally proceeds to suppuration. That of the arachnoid membrane, to thickening of its structure, and probably also to serous effusion. Inflammation of the *substance of the brain* seldom extends over any large portion of that viscus. Its most usual termination is in abscess.* The treatment of genuine phrenitic inflammation is to be conducted on the common principles, but the measures of depletion must be prompt and vigorous, proportioned to the violence of the symptoms, and the importance of the organ attacked.

I have already, (Pages 35, 62, and 68,) spoken of the tendency of common fever, both in this country, and still more in warm climates, to implicate the brain, and to give rise to all the symptoms of phrenitic inflammation. Whether these depend on *true* inflammation, or are attributable to a mere state of *congestion* in the vessels of the head, is a matter of no great importance; but the occurrence of such symptoms demands the serious attention, and their management the utmost skill of the practitioner.

Children are very subject to an inflammatory affection of the brain, commonly known by the name of

* Vide Baillie's "Morbidity Anatomy." Chap. 24.

hydrocephalus. By Dr. Cullen it was called *apoplexia hydrocephalica*, but in strict nosological language it is the *phrenitis hydrocephalica*, or the *phrenitis infantum*. The disease, though very common, was not described with any degree of accuracy until about ninety years ago, by Mr. Paisley, in Vol. 3: Ed: Med: Essays. In 1768 it was made the subject of an essay by Dr. Whytt. In 1808 a very complete description of the disease appeared from the pen of Dr. Cheyne.

Hydrocephalus prevails chiefly among children from the third to the sixth year of life. It has been noticed indeed as early as the second year, and as late as the fourteenth. After that period it is seldom met with. From the circumstance of its occurring for the most part in children, the symptoms of the disease do not always admit of being very accurately ascertained. This contributes, with some other circumstances which will hereafter be noticed, to render the diagnosis more difficult in this disease than in any other to which the human body is subject. Hydrocephalus may, for the purposes of instruction, be considered as exhibiting four stages or sets of symptoms; but the distinction must be viewed as a very arbitrary one, and it should be thoroughly understood that, in many cases, the symptoms of different stages will be found blended together, or one or more of them altogether wanting.

1. The symptoms which characterize the first, or premonitory stage of hydrocephalus, are those

of common *infantile fever*, such as often accompany the state of dentition, or a foul stomach, or a disordered state of the bowels, more especially when complicated with the presence of worms. The pulse is quick, the skin hot, the sleep disturbed, the tongue white; there is some degree of nausea, and vomiting, with thirst, restlessness, and loss of appetite. The child droops. The fauces being very dry, he picks the nose so as often to make it bleed. The body wastes, and the skin is flabby. The symptoms have irregular exacerbations and remissions, so that this state of disease is generally known by the name of *infantile remittent fever*. An exacerbation usually takes place towards evening.

2. The second set of hydrocephalic symptoms are those which more unequivocally direct the attention to the head as to the seat of disease. They are head-ache, sometimes diffused, sometimes referred to a particular spot; impatience of light and noise; a flushed countenance; præternatural redness of the conjunctiva; contracted pupil; tossing of the arms to the head, and occasional screaming or shrieking without any obvious cause. With these are joined the common symptoms of infantile fever, and they denote what pathologists consider the state of acute inflammatory action of the vessels of the brain.

3. The train of symptoms which characterize the third stage of the disease are of a different kind. The pulse, before quick, becomes slow, intermitting or irregular. The pupils are permanently dilated, and cease to

contract on the approach of light. There is strabismus, or squinting. Instead of being restless, and tossing about his arms, the child falls into a state of stupor, and is insensible to things and persons around him. The screaming fits occur more frequently, and there is an almost constant moaning. The child will often vomit on being brought into the erect posture. These symptoms are supposed to mark that water is now poured out by the vessels of the brain, particularly by those of the arachnoid membrane and choroid plexus.

4. If the child survives this stage, it is occasionally found that after a time the pulse again rises, so as to beat 150 or more in a minute, and is withal small and feeble. The stools and urine pass involuntarily. The face is pale; the tongue dry and brown. Subsultus tendinum, convulsions, or partial paralysis (as of the levator palpebræ) occur. The immediate approach of death is often preceded by gangrenous spots, or ecchymoses, appearing particularly about the neck, hips, or tips of the ears.

I have already alluded to the great variety which exists in the symptoms of hydrocephalus, and above all, in the order in which they appear, but of some of these it will be proper to take more particular notice. The first stage is sometimes wanting, the attack being sudden, and perhaps the first evidence of the disease a strong convulsion fit. In many instances the pulse never becomes slow. In a still larger proportion of cases the disease never exhibits that remarkable change from the slow to the *rapid* pulse,

which characterizes the fourth stage. Occasionally there is neither permanent contraction, nor dilatation of the pupil, but throughout the *whole* course of the disease, an irregularity in the contractions of the iris may be noticed. I have seen children continue sensible to the last moment. Other, and even more singular varieties in the symptoms of hydrocephalus, will be found recorded in the writings of authors.

The duration of the disease is liable to almost as much variation as the symptoms which characterize it. It has been known to prove fatal in a week. Some cases run on as far as seven or eight weeks, but these are comparatively rare. The average duration of hydrocephalus may be stated to be three weeks. The general opinion of the world has sufficiently stamped the *prognosis*. Dr. Whytt did not save above one out of twenty cases. Many practitioners of great experience have seen only two or three instances of favourable termination, when the symptoms were so strongly marked as to preclude all possibility of being deceived as to the nature of the complaint. But it must be confessed that the *diagnosis* is difficult, and while I admit that children have died, the true nature of whose disease had been overlooked by the practitioner, I am equally satisfied that many cases of genuine hydrocephalus have been recovered by judicious treatment, which (on that very account perhaps) were considered to be only disordered states of the *primæ viæ*.

To determine what the diseases are, with which

hydrocephalus is liable to be confounded, is an object of very considerable importance. 1. The first is common or typhus fever. The only manner of guarding against this source of fallacy is by bearing steadily in mind, that idiopathic fever is not common in young subjects, and that hydrocephalus is. Unless the evidence therefore be very unequivocal, (as where the disease can be *distinctly* traced to contagion) the symptoms should always be attributed to hydrocephalus, and not to typhus.

2. The second source of difficulty in the diagnosis, arises from the *early* symptoms of hydrocephalus being in every respect the same with those which accompany abdominal irritation; but chiefly from the important pathological principle that several abdominal diseases, particularly those of children, are liable in their progress to affect the brain and nervous system, and to produce symptoms resembling those of the *latter* stages of hydrocephalus. The exact nature of these abdominal affections has been a frequent subject of dispute. By some it is supposed that derangements in the *hepatic* system have a strong tendency to produce hydrocephalic symptoms, but I do not believe that the liver is more, if even so much concerned in this as the stomach and intestinal tract. A mere functional disturbance of these organs gives rise to remitting fever, head-ache and vomiting. The presence of worms creates a degree of irritation that in the most striking manner counterfeits hydrocephalus. But of all the states of abdominal disease which are liable to be mistaken for it, by far the most

important is ulceration of the mucous coat of the small intestines, particularly the ileum. In its latter stages I have seen this disease attended in children with coma, dilated pupil, and screaming, constituting a secondary affection of the brain and nervous system.

3. The last observation connected with the diagnosis of hydrocephalus which I shall make is, that the latter stages of pneumonia in children are sometimes attended with coma and screaming, but as the early symptoms are here of a different character, this circumstance is but little likely to become a source of pathological error.

Dissections in hydrocephalus exhibit the ventricles more or less distended with fluid. The quantity varies much, and can never be anticipated from the violence of the preceding symptoms. From one to six or eight ounces are generally found. The effused fluid does not coagulate on the application of heat, like that of the serum of the blood, or of many other dropsical fluids. It has never happened to me to see any flakes of lymph floating in it. Where the disease occurs at an early period of life, the quantity of effusion has sometimes been such as to cause a tumour on the anterior fontanelle. I know too that in some cases the ossa parietalia have been separated by this disease to a considerable extent, after being to all appearance firmly closed. Tumours, probably of a scrophulous kind have been also met with, of different sizes, situate either in the substance of the brain

or cerebellum, or attached to the membranes. It has often occurred, that where hydrocephalic symptoms have been the most strongly marked, no morbid appearances have been discovered in the brain on dissection. In these cases it is generally supposed that the disease has proved fatal during the first stage, but in a certain proportion of them, organic disease sufficient to account for death might be found in some other part of the body, were the dissection fully prosecuted.

We have stated that hydrocephalus is one of the forms of phrenitic inflammation, but it must be admitted that such a view of the disease is not perfectly satisfactory. This may be gathered from the very rare appearance of flakes of lymph, or of suppuration in the brain, in consequence of hydrocephalus; and from the great mortality which attends the disease in spite of the vigorous measures of depletion which are so constantly practised, and which would not fail to relieve inflammatory affections in other parts. In what circumstances hydrocephalus differs from common phrenitis has never been accurately explained. It is commonly stated, that the first stage of distinct hydrocephalus is one purely of increased excitement of vessels, and that serum is not effused until the pupils are dilated, or strabismus, or the slow pulse come on. This piece of pathology has always appeared to me to be doubtful. I am inclined to think, that the vessels of the brain throw out an undue proportion of water even from the very first, and that the symptoms of *compression* which mark the advan-

ced stages of the disease are owing to the *accumulation* of water in the ventricles, rather than to incipient effusion.

The only predisposing cause of hydrocephalus that is known, is the scrophulous diathesis. Its most common exciting causes are teething, suppressions of *tinea capitis*, or of scrophulous runnings behind the ears; injuries to the head; and previous diseases, as measles, scarlatina, whooping-cough, pleurisy, or disorders of the stomach and bowels. In many cases however it has arisen without the slightest perceptible cause. It is one of the very few inflammatory affections which is not attributable to cold.

In the treatment of hydrocephalus, the object is to diminish that general inflammatory excitement, and that flow of blood to the head which exist during its early stages, and afterwards to promote, if possible, the absorption of the effused fluid. In what we have called the first or premonitory stage, reliance is to be placed on purgative medicines, particularly rhubarb and calomel, or the compound powder of scammony, in doses sufficient to ensure a full action on the bowels. When the symptoms of phrenitic inflammation develop themselves, the jugular vein must be opened, or a vein in the arm, and from four to six ounces of blood taken away. I have opened the temporal artery in this disease with the best effect. If general blood-letting be thought inadvisable, leeches or cupping may be substituted,

and their operation assisted by purging with calomel and jalap, or a neutral salt, and by the application of cold to the head. In a few instances I have had recourse to the cold affusion. The child may further be directed to take every three hours a saline draught, with antimonial wine and the tincture of digitalis, as in the formula N°. 10.

When the symptoms lead to the notion that water is effused, bleeding is for the most part ineffectual, and even sometimes absolutely prejudicial. It ought not however be forgotten, that the symptoms of effusion are equivocal, and that an inflammatory condition of the cerebral vessels does not always subside, even when effusion has actually taken place. Blisters should now be applied, either to the crown of the head, or to the arms, or better perhaps to the back of the neck. At an earlier period of the disease they appear rather to increase irritation. Occasional purgatives and the exhibition of digitalis may be continued, with the view of directing the fluids upon the bowels or the kidney. Under the idea of stimulating the absorbents, mercury is nearly always resorted to. Calomel, in large and frequent doses, is recommended by some even from the very first, but the propriety of this practice is very questionable. Mercurial inunction is preferred by others. Towards the latter stages of the disease, this method of treatment has certainly proved effectual in a few cases. It is seldom that salivation is excited, but the medicine frequently shews its influence upon the system, by affecting the bowels.

It remains for me to notice one other form in which hydrocephalus appears: I mean where it occurs before the sutures have closed.* Sometimes this disease is congenital, but more usually it begins during the first month. In consequence of the bones of the cranium giving way, the usual symptoms of compression do not come on. The size which the head attains in this disease is often enormous.† On dissection the brain appears flattened out, but it will be found to weigh about as much as a healthy brain would have done at the same age. In the progress of the disease, the functions are very little, often not at all impaired till a short time before death. Attempts have been made to afford relief to this apparently hopeless state of disease by tapping, and a successful case is recorded in the *Medico-Chirurgical Transactions*. (Vol. 9. page 354.) The disease does not necessarily prove fatal at an early age, a few cases being on record of its continuance to an advanced period of life.

* This disease has been frequently, but very improperly, termed *hydrocephalus externus*.

† I made the following measurements of the head of a child eleven months old, who died of chronic hydrocephalus under my care, December 28, 1818.—Greatest circumference of the head 23 inches.—Smaller circumference $22\frac{1}{2}$ inches.—distance of the parietal bones from each other, 7 inches. Four pints of fluid were contained within the brain.

CHAP. V.

OPHTHALMIA.

Structures primarily affected—Inflammation of the Conjunctiva—Mild and Purulent—Consequences of Purulent Ophthalmia—Causes of this disease—Peculiarities of Scrophulous Ophthalmia—of Iritis—Principles of the treatment of Ophthalmia.

THE attention of medical authors has been strongly directed to the subject of ophthalmia during the last twenty years, chiefly in consequence of the general introduction into the army, of the purulent or Egyptian ophthalmia. This happened in the year 1800, previous to which time, neither the seat of the disease, nor the precise character of its consequences had been described with any degree of accuracy. The circumstances that render the study of this disease so difficult, are the varieties of structure which we meet with in the complicated organ of vision, where membranes, cartilages, humours, ducts, glands, and hairs, are all intimately connected together. It will not be necessary however here, to enter with any degree of minuteness into the consideration of ophthalmia, because it has latterly been almost wholly taken out of the hands of the physician.

Still the outlines at least of the pathology of ophthalmia should be understood by every student of physic, and further, a brief notice of them will be necessary to compleat our view of the inflammatory affections of the body.

Inflammation may begin in almost every one of the structures of which the eye is composed, but the principal primary seats of ophthalmia are, the tunica conjunctiva, the sclerotica, the iris, and the meibomian glands. The phenomena of the disease are remarkably modified by diversities of exciting cause, more so perhaps in this than in any other instance which could be brought forward. This principle therefore it will be necessary to bear in mind, in the short sketch which will be offered of the symptoms and progress of the disease. The structure most frequently affected is the conjunctiva, in function resembling a mucous membrane, though in appearance more nearly allied to those of the serous class. The inflammation of this membrane is characterized in mild cases, and where the disease arises from common causes, by pain, intolerance of light, a sensation of sand in the eye, head-ache, redness of the eye, and an *increased flow of tears*. The general febrile symptoms are slight, or perhaps altogether wanting. The disease gradually goes off without leaving any permanent bad effects.

In the severer forms of ophthalmia, the invasion is often sudden, the progress of the disease rapid, and its tendency is to disorganize all or some of the

structures necessary to vision. Besides the symptoms already enumerated, there occur in this form of ophthalmia, swelling of the eye-lids, and secretion of purulent matter by the inflamed membrane, often in enormous quantity, and from a very early period of the disease. The conjunctiva quickly loses all traces of transparency, and exhibits, instead, a mass of spongy red granulations, in which the transparent cornea may sometimes be observed as at the bottom of a well. This inflammatory thickening of the membrane, from the increase of its vessels, is called *chemosis*. The other symptoms are in a proportionate degree of violence. The head-ache is excruciating. The smallest ray of light gives intense pain. The febrile symptoms which accompany this state of disease run high, and are for the most part aggravated towards evening.

This is the disease known by the name of the purulent or Egyptian ophthalmia. Its further progress depends in a great degree upon the measures of treatment which may be adopted in its early stage. If these are judicious, the symptoms begin to yield about the third day, and in the course of some weeks the eye is restored to its natural state. But if the disease be unusually violent, or its early stages neglected, disorganization of the eye follows to a greater or less extent.

Sometimes the inflammation spreads to such a degree, that every part of the ball of the eye becomes involved in one uniform mass of suppuration, and

the eye is totally lost. This however is rare. The disorganization is generally confined to one or other of its different structures. The inflammation for instance, spreads from the conjunctiva covering the sclerotic coat, to that more delicate part of the membrane, which extends over the cornea, and the consequence is either opacity or thickening of the cornea, occasioning total or partial blindness;—or open ulceration of the cornea, a state of disease attended with a remarkable degree of pain;—or lastly, *interstitial* ulceration of the cornea. This last affection is, correctly speaking, ulceration of the proper membrane of the cornea, the delicate layer of conjunctiva which covers it remaining entire. This kind of ulcerated cornea occurs often in debilitated states of the system, and is accompanied by a deficiency, or total absence, of that action in the vessels which is necessary to repair the loss of substance. It is therefore often relieved by bark, and other tonic medicines, and by stimulant applications to the eye itself.

Sometimes the inflammation spreads to the deep seated membranes of the eye. The iris in particular is frequently so affected, and the consequences are various. Lymph or pus may be effused into the anterior chamber of the eye. If pus is effused to any extent, the cornea is pushed forward, presenting the appearance called hypopion, or poached eye; or it may be ruptured and the iris protruded. Another effect of the inflammation spreading inwards is, that the iris contracts adhesions, particularly with the capsule of the chrystalline lens, and with the posterior

layer of the cornea, whereby the motions of that membrane are lost, and blindness, to a greater or less degree, produced.

Occasionally it happens that the *eye-lids* continue to suffer, either with, or without permanent disorganization of the eye itself. The internal surface of the eye-lids, for instance, remains red and granular; and this in its turn renews the inflammation of the conjunctiva covering the ball of the eye, and leads perhaps to opacity of the cornea. At other times the cartilaginous edges of the eye-lids are the parts affected, and the eye-lids are either everted, forming the disease called *ectropion*, or the tarsi are turned inwards upon the ball of the eye, constituting the *entropion*. Both these states of disease of the palpebræ are exceedingly tedious, and often difficult to manage. There appears to be something about them which is not yet fully explained.

The only other consequence of acute ophthalmia which it is necessary to allude to here, is that state of *chronic* inflammation of the conjunctiva which is frequently left, especially in weak and scrophulous habits.——Before proceeding to notice the other varieties of ophthalmia, it may be proper to enquire into the causes of that common form of it, whose principal symptoms and consequences have been now detailed.

Mechanical and chemical irritations, such as acrid fumes, a drop of spirit getting into the eye, an eye-

lash turned inward, walking against a very strong wind, or too long exercise of the eye, are frequent causes of ophthalmia. In no part of the world is it a more common disease than in Egypt, and several causes have been assigned for its prevalence in that country. The fact appears to be, that a great many circumstances, each of them sufficient to produce ophthalmia, are there combined; such as great heat succeeded by heavy dews; bright light; a burning wind from the desert, and innumerable particles of fine sand every where floating through the air.

But besides these causes of ophthalmia, which may be supposed to operate upon the eye *directly*, there are many, which act through the medium of the general system. Cold may be mentioned as one of the most frequent. Bile and sordes in the stomach and bowels have occasioned ophthalmia. The purulent ophthalmia of infants has been attributed by some to this source. Intemperance leads to a chronic state of inflammation of the eye. The presence of fever in the body, or the operation of the exanthematous poisons have brought on ophthalmia, as we judge from its so frequently accompanying small-pox, measles, catarrh, and hydrocephalus. As it often happens that inflammation of one eye is succeeded by a corresponding affection of the other, sympathy of the eyes has been justly regarded as an exciting cause of the disease. *Habit* may be looked upon in the same light. It is well ascertained, that a soldier who has once suffered from a severe attack of ophthalmia, is liable to have it renewed by very slight causes, such as a night-

guard or a debauch. No doubt can be entertained that among the exciting causes of ophthalmia, *contagion* deserves to be noticed. This has been disputed, but not by those whose opportunities of observing the disease have been upon an extensive scale. The experience of the army fully warrants this principle of pathology.

One of the most remarkable of all the exciting causes of ophthalmia still remains to be mentioned ; —the repulsion of gonorrhæa, or metastasis from the urethra to the eye. The occurrence is rare, but it is sufficiently ascertained. Some have attempted to explain the phenomenon by supposing that there is a direct application of the gonorrhæal matter to the eye ; but this is altogether an unsatisfactory hypothesis. Ophthalmia from repelled gonorrhæa is always a violent disease, resembling in every respect the worst forms of Egyptian ophthalmia. While the eye continues inflamed, the discharge from the urethra generally ceases. The circumstances which tend to produce this metastasis, or translation of the disease, have never been explained, though they are probably within our reach.

Such are the most important of the causes of common inflammation of the eye ; and we have next to notice those which do not merely operate as exciting causes, but which have a further effect in giving a peculiar *character* to the disease. Of these the most important are *scrophula* and *syphilis*.

When ophthalmia occurs in a scrophulous habit of body, the parts most usually attacked are the conjunctiva, the tarsi, and the meibomian glands.* The disease is very common in young children from the time they are weaned, and is often the first indication of the presence of the scrophulous diathesis. Scrophulous ophthalmia occurs both in the acute and chronic form. The appearance of the eye in either is very characteristic. The disease is attended with a high degree of impatience of light, and a profuse secretion of tears, greatly exceeding what might have been expected from the corresponding severity of other symptoms. It is accompanied by a copious secretion from the glands of the tarsi of a thick matter, which during sleep agglutinates the eye-lids. Besides those consequences which it has in common with some other species of ophthalmia, the scrophulous inflammation of the eye is often followed by ulceration of the cartilaginous edges of the palpebræ, which under bad management may continue to harass the patient for a number of years. It must be remembered, however, that this chronic inflammation of the tarsi, (the *ophthalmia tarsi* of Dr. Cullen) though very frequently, yet is not always dependent upon the scrophulous disposition.

The venereal poison is occasionally the cause of inflammation of the conjunctiva, but for the most part

* For a very clear and practical detail of the symptoms and treatment of scrophulous ophthalmia, see Jeffreys's "*Cases in Surgery.*" London. 1820.

venereal ophthalmia assumes the form of inflammation of the iris. In this disease there is increased sensibility of the eye, with pain in the eyeball, without the usual redness of the conjunctiva. The fine hair-like vessels of the iris may be observed injected with red blood, or small specks of blood may be seen extravasated upon that membrane. In a more advanced stage of the disease, the fibres of the iris may be observed to be agglutinated. The edge that looks inwards appears thickened and immovable. A layer of lymph, or a globule of pus, may be seen upon it; or it is found adhering to the cornea or capsule of the lens. The latter stages of *iritis* are attended with severe pain, aggravated towards night.

Such are the appearances of venereal ophthalmia. The power of calomel over this state of disease is admitted to be very great; and it must therefore be considered a very singular circumstance in the history of *iritis*, that it has sometimes been *brought on* by calomel. This idea at least is entertained by some, but by others the correctness of the opinion has been called in question.

The treatment of ophthalmia involves too many surgical details to be entered upon with any minuteness here. During its early stages, and before any disorganization of structure has taken place, its treatment must be conducted on the general principles which have been already explained. In the Egyptian ophthalmia, the depleting system must be early resorted to, and vigorously pursued. Bleeding at the

arm, (in some cases opening the temporal artery) with local blood-letting, active purging, blistering, and nauseant doses of emetic tartar are to form the groundwork of the treatment. In milder cases of ophthalmia, leeches, purgatives, and cold lotions will be sufficient.

When the disease has assumed a chronic character, some applications of a stimulant kind, as the diluted citrine ointment, alum lotions, or the vinous solution of opium are eminently serviceable. When the disease has advanced to such a point that any of the structures within the orbit are injured, the case becomes purely surgical. Scrophulous and venereal ophthalmia require a treatment adapted to the particular circumstances of the exciting cause. In iritis from the syphilitic virus, calomel, as I have stated, is indispensable. In scrophulous ophthalmia an anti-phlogistic plan of treatment must be judicially combined with the administration of such medicines, and the observance of such a regimen, as are found useful in counteracting the scrophulous disposition.

CHAP. VI.

CATARRH, SORE THROAT, AND THE MUMPS.

Symptoms of Catarrh—Its causes and consequences—Peculiarities of the Epidemic or Contagious Catarrh—Treatment of Catarrh—Symptoms of Cynanche Tonsillaris—its causes, terminations, and treatment—Symptoms causes, and consequences of Cynanche Parotidæa.

CATARRH is the inflammation of the Schneiderian membrane. Dr. Cullen classed it with inflammation of the mucous membrane lining the bronchia, and placed it in a separate order. On several accounts it is advisable to deviate from both these points of arrangement. Catarrh is characterized by a sense of fulness in the nose, of a weight or fulness in the head, with an altered state of the secretion of the part, and more or less general fever. At first, the secretion from the membrane is altogether checked. The nose is stuffed and dry. After a time a thin acrid fluid is secreted, which gradually increases in quantity, becomes opaque, and alters in colour, until at length it is restored to its healthy condition. The inflammation generally extends to the mucous membranes in the neighbourhood, and hence redness and watering of the eyes, hoarseness, a sense of rawness in the wind-pipe, cough, and often a

degree of oppression about the chest, accompany the other symptoms.

This disease, if properly attended to, seldom lasts long, but by neglect it is protracted, and not unfrequently leads to severe bronchial inflammation, or to pneumonia,—in scrophulous habits to affections of the larynx, hæmoptysis, and phthisis. In some persons there is a very strong disposition to catarrh, and this is one of the marks of a scrophulous constitution. The only exciting causes of *common* catarrh are cold, and changes of weather, but there is a very curious variety of this disease, which arises apparently from contagion, and is well known under the name of *the influenza*. From the earliest records of the world epidemic catarrhs have been noticed. In the last century, fifteen are distinctly described, the most remarkable of which was that of 1782. The chief peculiarities of the contagious epidemic catarrh are, that its attack is for the most part very sudden, and accompanied with a remarkable degree of languor and debility. This usually continues through the whole course of the disease, and even sometimes after the other symptoms have declined. It runs its course in three or four days. It is attended with a more urgent headache, and with more disorder of the stomach than occur in common catarrh. But severe as it sometimes is, the influenza is not a disease of danger. The bills of mortality seldom indicate any notable increase in the proportion of deaths during the existence of such an epidemic. Elderly persons are

those who chiefly suffer by it, from the copious effusion of a viscid secretion into the air-passages.

On every occasion when an influenza has prevailed, the question has been agitated whether it spreads by contagion and personal intercourse, or arises from some peculiar state of the atmosphere. Each of these opinions has found its supporters, but a third class of pathologists hold a middle course, and while they admit the doctrine of a particular contagion, maintain that it is conveyed by the air. Upon comparing the evidence which has been collected together, with the view of elucidating this point, it is impossible, I think, not to perceive, that the phenomena are best explained upon the principle, that the disease is propagated by contagion and personal intercourse. The difficulties which lie in the way of this explanation will be obviated upon the supposition of some *peculiarities* in the contagion of catarrh. There is every reason to believe, that the sphere of contagious influence differs in different cases. That of small-pox has been shewn by Dr. Haygarth to be very limited. Now in the present instance, it is probable that the contagion is of a very diffusible nature—that the contagious effluvia will float to a considerable distance from the infected individual. It appears further, that its latent period is very short, perhaps not exceeding a few hours. On these principles we may account, in a manner sufficiently satisfactory, for the anomalies which the history of influenza presents. The circumstance of its travelling from the most distant parts of the world, and resisting

in its progress the extremes of European heat and cold, is conclusive as to its being something more than a common catarrh, produced by variations of atmospheric temperature.

Catarrh is seldom a disease of sufficient importance to become an object of medical treatment. In many cases, it may be left with perfect safety to nature, when a spontaneous perspiration will commonly relieve the symptoms. If it prove somewhat more severe, the patient should keep within doors, abstain from animal food, take a dose of salts, and promote diaphoresis by the pediluvium and mild diluent drinks. To alleviate the cough, if it prove urgent, recourse may be had to a mucilaginous mixture, or an oily emulsion, as in the forms N^{os}. 11, 12 and 13. The hoarseness and sensation of rawness in the trachea are often lessened by the use of Mudge's inhaler. If there is considerable oppression about the chest, with difficult expectoration, and fever, antiphlogistic measures of more activity must be resorted to, proportioned to the violence of the symptoms, such as will hereafter be mentioned when treating of thoracic inflammation.

The epidemic catarrh is generally, but not invariably, more severe than the common form of the disease. The same general system of treatment is to be recommended also here. It appears of importance to promote diaphoresis and expectoration, by the employment, first, of antimonials, and afterwards of preparations of squill. Gentle aperients, and

opiates at night are adviseable. On account of the debility which usually accompanies the latter stages of this disease, bark and cordials are often necessary at that period.

CYNANCHE TONSILLARIS is the inflammation of the mucous membrane of the fauces, affecting especially the tonsils, and from thence spreading, so as to occupy in many cases, the palate, uvula, pharynx, and membrane lining the back part of the nose. It is readily distinguished by the redness and swelling of the internal fauces, by the difficulty of deglutition, and the accompanying fever. When the inflammation runs high, the swelling of the tonsils is sometimes so great as to impede deglutition altogether, and patients have suffered severely, under such circumstances, from hunger and thirst. It sometimes extends to the orifice of the Eustachian tube, and produces deafness. Food or drink attempted to be swallowed are sometimes returned by the nose, and this is a sign of very severe inflammation. In many cases the tongue cannot be protruded without occasioning considerable pain. It is seldom that the breathing is affected.

The febrile symptoms which accompany cynanche tonsillaris are often urgent, and almost at all times severer than could have been anticipated from the extent of local disease, or the importance of the organ attacked. The pulse is often as high as 120, and the

tongue is covered with a thick coat of fur. Much febrile debility attends this disease, particularly where the inflammation, in its appearance and progress, has the characters of erysipelas, more than of phlegmon. The duration of the disease is very various. Under common circumstances it will subside by resolution in the course of a few days; but occasionally, a great degree of debility continues, and the convalescence is protracted for many weeks.

1. *Cynanche tonsillaris* frequently terminates, when the inflammation is active, by suppuration in one or both tonsils, and the rapidity with which pus will form in the loose texture of these organs is very remarkable. The matter of the abscess is fœtid and nauseous. The bursting of it is always followed by great and instantaneous relief.

2. When the inflammation, instead of being of a vivid red colour, has an aspect inclining to purple, we consider that it partakes of the nature of erysipelas, and it will then generally be found to terminate by superficial vesicles and ulcers, of a white or grey colour, similar in their nature to *aphthæ*. These often create a great deal of alarm from their resemblance to the sloughs of *cynanche maligna*, but they commonly go off in a few days, and are productive of no inconvenien c

3. In some cases the inflammation will neither advance nor recede, and I have in vain attempted to determine upon what this depends. It is most com-

mon in persons of a scrophulous habit of body, and who from their aspect might be considered as predisposed to phthisis pulmonalis. After the lapse of a fortnight or three weeks, the disease will in such cases commonly give way, but occasionally a permanent enlargement of the tonsil remains. This, I think, chiefly occurs in delicate young women.

Cynanche tonsillaris is a disease of little or no danger, scarcely any fatal cases of it being on record. It is rendered severe by neglect, and danger may sometimes be apprehended from the tonsils pressing on the glottis. Its immediate exciting cause is, in all cases, exposure to cold, as from getting wet feet, or from sitting in a partial current of air, particularly if the body be previously over-heated. It affects chiefly the young, and those of plethoric habit. It occurs especially in the spring and winter seasons, and in cold and variable climates. Habit increases the disposition to the disease, so that some persons scarcely ever pass twelve months without experiencing an attack of it, and in them it is induced by very slight causes. This affection occurs as symptomatic of scarlatina, and small-pox, and it sometimes attends measles, catarrh, and croup. It is occasioned also by the poison of mercury and the venereal virus; but in all these cases there will be found sufficient in the aspect of the disease, or of the concomitant symptoms, to prevent ambiguity in the diagnosis.

An antiphlogistic system of treatment is required

in cynanche tonsillaris, but venesection is seldom, if ever necessary. Leeches to the external fauces have been recommended, but they are of very little use. If the inflammation runs high, the best means of drawing blood is by scarifying the tonsils, and a little blood so obtained affords very effectual relief. In slighter cases, it will be sufficient to rub the throat with some rubefacient liniment, as the *linimentum ammoniæ*; and to direct the frequent use of a repellent gargle, as of the infusion of roses with a small proportion of tincture of capsicum (R N^o. 14.). In all cases, a saline purgative, as an ounce of the sulphat of magnesia, is advisable, but if much fever be present, the patient should be confined to bed, and the saline draughts (R N^o. 2 and 3) administered. If suppuration is likely to take place, it may be promoted by the employment of mild emollient gargles, as of the dec: hord: compos: of the London Pharm. The decoction of bark may be employed as a gargle when there are superficial ulceration or specks, but administered internally it will be found to aggravate the febrile symptoms. As long, therefore, as the pulse remains frequent, with thirst and restlessness, saline draughts only should be given. When the fever subsides, the decoction of bark and acid (R N^o. 15) may be administered with advantage.

When the disease is disposed to be stationary, a blister to the fauces, or better to the upper part of the sternum, or behind the ears, has frequently proved useful. In the state of chronic enlargement of the tonsil, very little can be done by me-

dicine, but gargles, even of the most powerful kind, are generally quite ineffectual. The disease sometimes yields in the most unexpected manner, probably in consequence of some change taking place in the constitution, the nature of which is altogether inscrutable. Some have recommended the removal of the part, either by the knife, or by ligature, when the disease has lasted a considerable time. In many cases this may be done with great propriety, but as a general rule it should not be resorted to, unless the breathing be impeded, or cough, or some other serious inconvenience be produced.

CYNANCHE PAROTIDŒA, or the mumps, is the inflammation of the parotid gland, interesting chiefly in a pathological point of view.

It begins by symptoms of fever, soon followed by swelling of the gland, appearing as a tumour at the corner of the jaw, and gradually extending over the face and neck. The swelling continues to increase till the fourth day, and then usually goes off by resolution. The disease chiefly attacks children. It is often epidemic and manifestly contagious. Occasionally however it attacks adults, occurs *sporadically*, and is attributable to cold. In a few cases it has been known to terminate by suppuration.

The most curious circumstance connected with the history of the mumps, is its tendency to affect the tes-

ticle by metastasis, and this most remarkably when it occurs in adults. The testicle swells as the inflammation of the parotid gland subsides, but this secondary affection seldom lasts long, or proves troublesome. In a considerable number of cases, a further translation has taken place to the brain, and symptoms of genuine phrenitis have supervened.* It does not appear that either of these metastases can be prevented by medical treatment, or that they are relieved by any attempts to bring back the inflammation to its original seat. They must be treated in every respect as idiopathic inflammations of the testicle, or brain.

Setting aside this consideration, the mumps can scarcely be said to require medical treatment. A saline purgative, and confinement to the house, are all that it appears necessary to insist upon.

* See a very instructive history of an epidemic mumps that prevailed on board His Majesty's ship Ardent, in Nov. 1807, by Mr. Noble.—Ed: Med: and Surg: Journal, July 1808.

CHAP. VII.

INFLAMMATION OF THE LARYNX AND TRACHEA.

Laryngeal Inflammation—Symptoms of Acute Laryngitis—Its Causes and Treatment—Symptoms and progress of Chronic Laryngitis—Symptomatic affections of the Larynx—Treatment of Chronic Laryngitis—of Croup—Its symptoms and progress—Of the disposition to Spasm in Croup—Appearances on Dissection—Causes of this Disease, predisposing and occasional—Treatment of Croup—Of Bronchial Polypus, or Chronic Croup.

THE inflammatory affections of the wind-pipe, though comparatively rare, are yet diseases of great importance, for this organ is essential to life, and the smallest disturbance of its function is sufficient to put life in danger. Inflammation of the larynx and trachea may co-exist, but they oftener occur independent of each other, and as their pathology is in many respects different, we shall consider them as distinct diseases. The larynx is subject both to acute and chronic inflammation, and these will require separate consideration.

Acute laryngitis is a very uncommon disease, and until lately, appears to have been overlooked by authors.

The fullest, and I believe I may add, the original account of the disease is by Dr. Baillie * in 1809, whose observations comprise almost every thing hitherto known concerning it. Since the appearance of Dr. Baillie's paper many well marked cases of the same affection have been published by Dr. Farre, Dr. Arnold, and others. It is characterized by fever, pain referred to the larynx, difficulty of breathing and of swallowing, hoarseness, or complete loss of voice, and spasmodic exacerbations of all the symptoms, creating a sense of suffocation which is urgent in the extreme. In some cases the pain is increased by pressure upon the thyroid cartilage. The disease is attended by the spitting up of a quantity of tough gelatinous mucus. If the epiglottis partake of the inflammation, which it often does, any attempt to pull the tongue forward will be attended with pain. In mild cases deglutition is but little impeded, but in most of the severe cases on record, the attempt to swallow fluids is followed by a violent spasm, sickness, and vomiting, and the fluid itself is sometimes forcibly rejected by the nose. The usual duration of the disease is four days. It is one of the most urgent danger.

On dissection the inner membrane of the larynx is found red and thickened, or œdematous. Pus is fre-

* Vide "Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge." Vol. III. Page 275. A very distinct case of acute laryngitis, with dissection, had previously been detailed by Mr. Mayd. See Med. Communications, Vol. II. Page 479. 1789.

quently met with in the sacculi laryngis, and sometimes, though not often, there is an effusion of coagulable lymph upon the membrane, as in croup. Acute laryngitis has only been known to arise from cold. It occurs chiefly in persons turned of forty, and Dr. Baillie suspects that a disposition to it is given by previous attacks of cynanche tonsillaris. It seems to prevail mostly in the months of March and April. The diagnosis from cynanche tonsillaris is sufficiently obvious. From cynanche trachealis, it is distinguished by the want of that peculiar sound of the breathing which we shall presently speak of, and by the period of life at which it occurs.

The treatment of the disease is to be regulated by the view which has been taken of its pathology. Large bleedings are required, and at the onset, they should be pushed so as to produce fainting. Leeches may be applied to the throat when the violence of the symptoms has been subdued, and a brisk cathartic given as soon as it can be swallowed. A very prompt and vigorous practice can alone offer any prospect of successful termination. The evident tendency to spasmodic exacerbation in this disease, renders it probable that opium may be advantageously given, when the proper evacuations have been premised. As a last resource, some have recommended tracheotomy, but, upon the whole, considering the disadvantageous circumstances under which the operation must be performed, it can scarcely be thought advisable.

Chronic inflammation of the larynx is far from being so rare as the acute form of the affection. It usually begins by pricking pains in the larynx, some degree of fever, cough, and difficulty of breathing. The most striking symptom of the disease is the long inspiration which occurs when it is fully formed, owing to the constriction of the glottis. The breathing is attended too with a peculiar noise, not unlike that which characterizes croup. To these symptoms are usually added, a copious but difficult expectoration of ropy mucus, a peculiar hoarseness or huskiness of voice, and often some degree of pain of the chest. The disease is attended by a slow, or hectic fever. The pulse is never full, or strong, but always very frequent. The skin is hot, the tongue cherry red and dry, and the bowels costive. As the disease advances, respiration becomes more and more difficult, and is aggravated in paroxysms, during which the face often becomes livid. The patient at length dies from suffocation. The duration of the disease is various, extending from three to twelve months.

On dissection ulceration is found within the larynx, generally in the sacculi laryngis; and along with this there is commonly some degree of thickening of the surrounding parts, and in a great majority of cases, ossification:—spiculæ of bone, that is to say, are to be felt within the ulcerated cavity. This phenomenon is not peculiar to ulcerated states of the larynx. I have observed it in a variety of other cases of inter-

nal ulceration. Upon what pathological principle this connection of ulceration with ossification depends, has never, as far as I know, been hitherto explained.

The repeated application of leeches to the throat affords the best prospect of relieving this very dangerous disease. Vomiting is allowed by all to be very prejudicial, as it creates much pain. The expectorant medicines which may be given, therefore, should be of the mildest kind. Alterative courses of calomel, cicuta, and opium, are usually recommended, with the decoction of sarsaparilla, and a milk diet. Blisters may be tried. Bronchotomy has been performed in several cases, but I do not know that it was ever permanently beneficial. In a case recorded by Mr. Charles Bell,* the patient lived seven weeks, breathing altogether by the opening.

Permanent hoarseness, unattended by pain, fever, expectoration, or any other mark of disease, is by no means unfrequent. It appears to consist in a thickening of the membrane lining the larynx. This, and probably all states of chronic inflammation and ulceration of the larynx, are symptomatic of some constitutional affection. Generally it is of scrophula, and a diseased state of the larynx is not unfrequently complicated with true tubercular phthisis. I have seen it originate however in a constitution worn down by syphilis and mercury.

* Bell's "Surgical Observations." Vol. I. Page 22.

In the progress of consumption, particularly towards its latter stages, it is not unusual to find a violent pain come on, referred to the larynx, and attended generally with hoarseness. From the violence of the pain, it might be supposed owing to inflammation; but leeches and blisters are of no service, and it generally goes off in four or five days. It is probably a sympathetic pain, connected, perhaps, with the recurrent nerve.

Dr. Cheyne, in his pathology of the larynx and bronchia, speaks of an affection, in every respect similar to that which we have called chronic laryngitis, happening as a consequence of measles. It prevails chiefly among children of scrophulous families, and proves very fatal.

Croup, or the acute inflammation of the mucous membrane of the trachea, was not described with any degree of clearness by the antient authors. The first regular history of it is to be found in the letters of Martin Ghisi, 1749. Dr. Home, of Edinburgh, made it known to the practitioners of this country by his "Enquiry into the Croup," published in 1765. For the fullest account of the disease which has since appeared, we are indebted to Dr. Cheyne.*

* The Pathology of the Membrane of the Larynx and Bronchia. Edin. 1809.

Croup is characterized by fever, a sonorous inspiration of a very peculiar character, and difficult respiration, aggravated in paroxysms. It prevails chiefly from the first to the third year of life; and though occasionally met with as late as the tenth or twelfth year, it is yet clear that the tendency to it diminishes in a remarkable manner as life advances. The almost complete immunity from croup enjoyed by adults, is, perhaps, referable to some alteration which the mucous membrane of the trachea undergoes about the age of puberty.

The true symptoms of croup are often preceded by those of common catarrh, and sometimes by ulcerated sore throat. Occasionally, however, they shew themselves from the very first, coming on towards the evening, or perhaps during the night. The child wakes with an unusual cough; and the inspirations, particularly those which immediately follow the cough, are long, and attended with that crowing noise, which is the most striking characteristic of the disease. Feverish symptoms succeed, and often run high. The pulse is frequent and hard, with thirst and extreme restlessness. The natural functions, as well as those of the brain, are not always disturbed to a corresponding degree. I have seen a child taking food and running about, while the disease was making rapid advances. If it proceed unchecked, all the symptoms are quickly aggravated. Respiration becomes more laborious, the cough troublesome, and the expectoration difficult, until the child dies, either suddenly in a paroxysm of dyspnoea, or more gradually by

suffocation. The usual duration of the disease, when violent, and uninfluenced by medical treatment, is about thirty-six or forty hours. Its danger is such, that if the alarming symptoms are not moderated during the first twelve hours, it generally proves fatal. If, by the efforts of nature or art, the child recovers what has been called the *second stage*, the convalescence is always tedious. It is attended by the expectoration of portions of a membrane, whose origin and nature will presently be noticed. In a milder form of the disease, where the difficulty of breathing is not so urgent at the commencement, the cough about the second day becomes loose and the skin moist, the fever abates, and the voice gradually recovers its natural tone.

One of the most important considerations in the history of croup, is the disposition which it shews to occasional *exacerbations* of all the symptoms. By some it has been contended, that these mark the true nature of the disease, and point out that it is one of a *spasmodic* rather than of an inflammatory nature;—at any rate, that there is a spasmodic, different from the inflammatory croup. This opinion is countenanced by the well-ascertained fact, that children are occasionally affected by a kind of croupy inspiration, which abates and recurs, without producing in the intervals any unpleasant effects. This appears to consist in a spasmodic affection of the muscles about the glottis. The tendency to spasmodic exacerbation is apparent in all the diseases in which the windpipe is involved. It is observable in laryngitis, croup,

chronic bronchitis, whooping cough, and asthma. The phenomena of the latter disease are sufficient to prove, that a spasmodic action of the muscles connected with the larynx, sometimes arises from causes independent of inflammation. It is probable, therefore, that many of the cases now alluded to arise from a foul state of the stomach, or perhaps from a high degree of irritability in the child's system. As I believe it, however, to be impossible in all cases to distinguish this, which has been called the *spurious*, from the genuine inflammatory croup,—as there is reason to suspect that the one may degenerate into the other,—and lastly, as the chief danger in croup arises from neglecting the disease in its early stage, so I am inclined to say, that no great degree of pathological importance is to be attached to this consideration.

Examination of the trachea, in those who die of croup, has made us acquainted with a very peculiar morbid appearance, I mean the adventitious membrane, or tube of coagulable lymph, which is thrown out by the inflamed vessels of the trachea, and in a great measure blocks up the passage. It arises at, or a little below the larynx, and extends in many cases to the bifurcation of the bronchia. A semi-purulent fluid is commonly found in the trachea at the same time, and occasionally traces are met with of pulmonic inflammation. Frequent as is the appearance of such a præternatural membrane in those who die of croup, it is by no means to be considered as a constant, or necessary part of the disease. Its formation is often indicated by the manner in which the

child breathes—throwing the head back, so as to put the trachea upon the stretch.

The most usual exciting cause of croup is cold, more particularly, exposure to a damp atmosphere. It prevails, therefore, chiefly in winter and spring, and is more common in the cold and temperate climates than between the tropics. Children who have once had an attack of croup, are liable to have it renewed on the application of very slight causes. A common catarrh will, in such constitutions, be often attended by croupy symptoms, until the thirteenth or fourteenth year of life. Second attacks of croup are seldom so violent as the first, but they always require the utmost caution on the part of the practitioner. Pathologists have almost invariably agreed in stating that the croup is not contagious. Some cases, however, which have lately fallen under my care, incline me to believe, that this opinion has been adopted without due consideration; and in a disease so violent and fatal as croup, it is highly important that this question should meet with attention. It is acknowledged by Dr. Cheyne, that in those cases which are attended, at the commencement, by a sloughy state of the fauces, a suspicion of contagion may be entertained; but he suggests that these are cases of *cynanche maligna*, upon which croupy symptoms supervene. Not being satisfied with this explanation, I feel myself bound, in all cases, to act upon the principle, that croup, in its worst form, is capable of being communicated by *contagion*.

With a view to treatment, croup has been divided into two stages, the first being that of inflammatory action, the second being distinguished by the formation of that præternatural membrane which we have already described. During the former, the chief reliance is to be placed on general and local bleeding, the warm bath, blisters, an emetic, and occasional purgatives. If these means fail to give relief in the first period of the disease, the object is then to promote expectoration, to relieve the disposition to spasm which so generally prevails at that time, and to support the strength of the system, which will commonly be found to have suffered from the previous measures of depletion. For these purposes, recourse may be had to preparations of squill, camphor, æther digitalis and opium, and to various medicines of the tonic and cordial kind. Some add to this an occasional emetic, the exhibition of small doses of calomel, and, as a last resource, bronchotomy. To this sketch of the general plan of treatment in croup, I shall subjoin a few practical suggestions.

A vomit of ipecacuan, administered at the very outset of the disease, appears in some instances to have checked it altogether. It will seldom fail of relieving cases of *spurious croup*, especially if followed by a dose of calomel. The continued exhibition of emetics, with the view of removing the mucus or lymph, which may be collected in the trachea, is a practice which cannot be recommended. Some authors have noticed, that there is a difficulty in exciting

vomiting in this disease, but this I have never experienced. In a few cases, on the contrary, I have found vomiting a very troublesome symptom. The great nicety in the treatment of croup, consists in the management of the general and local blood-letting. Children do not bear the evacuation of blood like adults; and in this disease it has appeared to me to increase, in some instances, the disposition to spasm about the glottis. The relief, however, afforded to the breathing, by taking away a few ounces of blood from the jugular vein, in a full stream, is always great and immediate, and should never be neglected in the early periods of the disease. If the symptoms recur, and the pulse continues hard, it may be repeated a second time, but a few leeches to the throat will often supersede the necessity of further depletion from the system. The draught (R N° 10) may be given every two hours, preceded by the purgative powder (R N° 16.)

The exhibition of calomel in small, but frequently repeated doses (as from one to five grains every two hours, R N° 18), has been strongly recommended by some practitioners, even from the commencement of the disease; but my own experience would incline me to say, that the advantages of this practice have been rated much too highly. The propriety of applying large blisters to the throat, has also appeared to me very questionable. Experience, as well as theory, induce me to think that the irritation produced by blisters may sometimes extend to the inflamed

membrane, and aggravate the symptoms of the disease. The warm bath frequently affords great relief to the breathing, and may be directed at night, or even twice during the day. When the measures of depletion have been carried as far as the strength of the constitution admits, recourse must be had to such medicines as allay irritation and promote expectoration. The tincture of digitalis may be continued in smaller doses, and to the draught containing it, may be added a proportion of oxymel of squills, and of the compound tincture of camphor (as in R N° 17). Laudanum, or the spt: æther: sulphur: may be substituted.

Bronchotomy is scarcely advisable in any disease, but in croup I believe it to be altogether inadmissible.

There is a very rare disease affecting adults called bronchial polypus. It is a chronic affection of the trachea and bronchia characterized by catarrhal symptoms, wheezing, and the expectoration of portions of a membrane which must evidently have lined those parts. Such *polypi*, as they have been called, are sometimes solid, but more commonly tubular. The fit of coughing which displaces them is often alarmingly violent. The disease has been known to last many years.

CHAP. VIII.

PNEUMONIA.

Of Thoracic Inflammation generally—Symptoms of Pleurisy—Of Acute Bronchitis—Of Peripneumony—Duration of Pneumonia—Prognosis—Terminations of Pneumonia—Mucous Expectoration—Effusion of Serum—Vomica and Empyema—Predisposing and exciting Causes—General plan of Treatment in Pneumonia—Venesection—Purgatives—Refrigerants—Expectorants—Blisters—Treatment during the state of Suppuration.

ACUTE inflammation occurring in any of the structures within the thorax, is what is understood by the term PNEUMONIA, the different species of which, as detailed by nosologists, have always had a reference to the particular structures which are the seat of disease. The principal of these are the pleura, the mucous membrane of the bronchia, and that continuation of it which lines the air-cells of the lungs, the proper cellular structure of the lungs, and the pericardium. In the present chapter, I shall confine my attention to the acute inflammation of the three first of these textures, and shall subsequently treat of the sub-acute and chronic forms of bronchial inflammation, of phthisis pulmonalis, and of the acute and chronic pericarditis.

Thoracic inflammation, in all its various forms, is characterized by the combination of the four following symptoms,—fever, pain of the side, difficult breathing, and cough, which constitute, therefore, the definition of pneumonia. But each of these symptoms is variously modified by circumstances, of which the most important is the structure, primarily or most essentially implicated. The pleura being that, the inflammation of which exhibits most perfectly the characters of the genus, I begin by describing the symptoms of *pleurisy*.

An acute pain of the side, highly aggravated on full inspiration, is the leading characteristic of this disease. The respiration is short and hurried, and is generally performed with most difficulty when lying on the side affected. A hard and short cough is always present; and, as it aggravates the pain, it is stifled as much as possible by the patient. At first it is commonly *dry*, that is to say, without expectoration. The accompanying fever is urgent. The pulse is frequent, strong, and *hard*. The tongue is loaded with a thick fur. Thirst, restlessness, a hot skin, and a scanty and high-coloured state of the urine may be noticed. The concurrence of these symptoms precludes all possibility of ambiguity as to the nature of the disease, or the requisite means of relief. When blood is drawn from the arm, it will be found *cupped* and buffy.

When the mucous membrane lining the larger branches of the bronchia, is affected by acute inflam-

mation, the following is the character of the symptoms. It may be right first to mention, that this form of thoracic inflammation is less frequent than the preceding, though on the whole more dangerous. The most urgent symptom is a sense of tightness or constriction about the chest, often referred very unequivocally to the precise seat of the disease. Respiration is hurried, and accompanied by a wheezing in the throat, but it can often be performed without increasing the uneasiness of the patient. There is cough, which from the first is attended with some degree of expectoration. The general febrile symptoms are very severe. The pulse is frequent, but it often wants that fulness and hardness which characterize pleurisy. Not unfrequently it is intermitting. There is always observable a remarkable expression of *anxiety* in the countenance, generally with paleness. The functions of the brain are here more disturbed than in the common cases of thoracic inflammation. In the progress of this disease, authors have noticed, that occasionally, at a particular period, the constitutional symptoms are suddenly converted from those of high inflammatory action into such as indicate extreme debility, or exhaustion.

The substance of the lungs is often the primary seat of acute inflammation, and the term *peripneumony* is usually applied to this form of thoracic inflammation. In most of these cases, the inflammation occupies the smaller ramifications of the mucous membrane, but the proper cellular texture of the lungs will, of course, partake of the disease. The parenchyma of the lungs may also be *secondarily* affected.

In a few cases of pleurisy, the inflammation is altogether confined to that membrane, but more commonly it implicates the neighbouring portions of the substance of the lungs. The usual symptoms of peripneumony are, an obtuse pain, sometimes referred to the side, but more usually to the sternum, or epigastrium, and occasionally to the back or shoulder; impeded breathing, which is often particularly difficult in the recumbent posture; a moist cough; and fever, the character of which, however, is subject to great variety. Sometimes there is so little constitutional disturbance, so little febrile oppression, that the disease makes rapid advances before its nature is suspected. Sometimes the pulse is hard, but much more commonly it is distinguished by its fulness and *softness*. Peripneumony is often attended by a puffiness of the features, lividity about the lips and under the eyes, and occasionally head-ache; symptoms obviously referable to the difficulty experienced in the transmission of blood through the lungs.

It is of the utmost importance to be fully aware of the varieties in the *symptoms* of pneumonic inflammation; but to detail them would serve only to distract the attention from those great features of it now enumerated, which the student should keep steadily in view. The variety in the *progress* of the disease demands a more extended notice. The insidious manner in which it sometimes makes its approach, is the first point which should be urged, so directly opposed as it is to the *sudden* attack experienced in other cases. Further, a degree of inflammatory

action frequently exists in the lungs for many weeks, without producing any permanent disorganization in their structure. At other times, the continuance of inflammation, even for a few days, lays the foundation of extensive and irremediable mischief. Notwithstanding, however, the importance of the organ attacked, the prognosis in pneumonia is not unfavourable. There is no form of inflammatory affection which is so completely under the controul of the physician as this. Resolution, therefore, is its most frequent termination; but it is to be observed, that in all the forms of bronchial inflammation, and in a large proportion also of the most genuine cases of pleurisy, the subsidence of inflammation is attended by an increased secretion from the mucous membrane of the bronchia,

This important principle points out the necessity of attending accurately, during the whole course of the disease, to the *state of the expectoration*, by which, no less than by the variations in the four leading symptoms already stated, is the progress of the inflammation to be judged of, and the treatment regulated. A copious and easy expectoration of mucus marks the decline of the disease. Nor is the prognosis less favourable, if the sputa be tinged with blood. A cream-like disposition in the urine, and a copious warm perspiration, are equally evidences of the subsidence of inflammatory action. Under certain circumstances, however, the secretion from the mucous membrane of the bronchia may be so profuse, as to exhaust the patient by the quantity of the

discharge, or by the necessary efforts for its expulsion.

Allied, in some degree, to the termination by mucous expectoration, is that by *serous* effusion into the air-cells. So far, at least, it is allied, that we presume this effusion takes place from the vessels of the inflamed membrane, yet, in a pathological view, it is carefully to be distinguished from that increase of the natural secretion of the part, of which we have already treated. The effused fluid is *serum*, or more strictly water, and it takes place not so much when the disease has a tendency to *resolve*, as during the height of inflammatory action. It has been supposed that the disposition to *serous effusion* is sometimes given, or increased by the too liberal employment of the lancet in the prior stages of the disease; but I have more commonly found it to occur where no treatment whatever had been adopted. The rapidity with which it takes place is a circumstance deserving of notice. The symptoms which attend it are, a livid appearance of the whole countenance, and a sudden sinking of the pulse, with urgent dyspnoea. It is, I believe, peculiar to peripneumony, and those diseases which have supervening peripneumony, and it proves fatal by suffocation.

Every form of pneumonia occasionally terminates in suppuration. When the pleura is the chief seat of disease, pus is sometimes thrown out by the inflamed membrane without ulceration, and is found after death floating loose in the cavity of the thorax,

constituting *empyema*. Occasionally, both in pleurisy and peripneumony, one or more abscesses are formed, called in this situation *vomicæ*. Acute bronchitis sometimes terminates by a profuse secretion of true purulent matter from the vessels of the inflamed membrane. The first and last of these states of disease are usually fatal. Vomica is not unfrequently recovered from. The symptoms of vomica are, a frequent and full pulse, the continuance of dyspnœa, a sensation of weight, or fullness, in a particular part, and, after a certain time, hectic fever and purulent expectoration. The matter of vomica is usually of a greenish colour, and fœtid.

There are still certain other terminations of pneumonia which it is necessary to be aware of. Pleurisy, for instance, is frequently followed by *adhesions* of the opposite surfaces of the pleura to each other. It is remarkable that this takes place without being productive, as far as can be judged, of any particular inconvenience to the breathing. In some cases serum is effused along with coagulable lymph, and the result is *hydrothorax*. It remains to be noticed, that occasionally, and more especially in the peripneumony of children, the only morbid appearance discoverable after death is, an engorgement of a certain portion of the lungs with blood. This renders it probable that, independent of effusion and consequent suffocation, pneumonia may prove fatal through the mere violence of inflammatory action. This principle in pathology will hereafter be more fully illustrated.

Pneumonia is, perhaps, the only inflammatory affection which occurs with equal frequency at every period of life, and under every variety of circumstance and situation. Its most common exciting cause is cold, and alternations of atmospheric temperature. It often supervenes on other diseases, such as measles, small-pox, catarrh, whooping cough, and occasionally rheumatism and gout. The disposition to pneumonia is much increased by long continued exercise of the lungs in speaking, by severe exercise of the body generally, and by its having before occurred. It prevails chiefly in the winter and spring seasons, like every other form of thoracic disease.

The principles of treatment in pneumonia are sufficiently simple; but the *extent* to which evacuation should be carried, having a due regard to the period of the disease, the nature of the prevailing epidemic, the age and circumstances of the patient, and the urgency of the symptoms, must be regulated by a habit of discrimination, that can be acquired only by clinical observation. In the acquisition of this knowledge, so essential to the safety of the patient, the student may perhaps be assisted by a few considerations which it shall be my object now to lay before him.

1. In blood-letting we possess a power of controuling pneumonic inflammation, the efficacy of which has been acknowledged in all ages, and is obvious, indeed, to the most superficial observer; but much depends

on the manner in which it is performed, the quantity of blood drawn, and the frequency of its repetition. Physicians have been struck, at all times, with the effect produced by taking the blood from a large orifice, in this, and other urgent cases of local inflammation; and it certainly cannot be too strongly urged as an indispensable point in practice. The orifice should be such as to allow a pound of blood to flow in five, or at furthest, in six minutes. The quantity to be taken at one time cannot be defined with any degree of accuracy. A pound of blood may be looked upon as an *average* for an adult. As a general rule it may be stated, that some effect ought to be produced on the *system*, before the orifice is closed; either faintishness, or sickness, or diminution of pain, or of the strength of arterial contraction..

2. In all cases of pneumonia of the least severity, bleeding from the system must be repeated, and the principal circumstances by which the frequency of its repetition is to be regulated, are the state of the symptoms, and the appearance of the blood drawn. Blood-letting is better borne in pleurisy than where the mucous membrane of the bronchia is the chief seat of disease; and as expectoration of mucus is one of the means by which all inflammation within the chest is relieved, venesection, on several accounts, must be practised with great caution when that symptom occurs. When suppuration has commenced, copious bleedings are inadmissible, but small bleedings may then often be resorted to, with the happiest

effect. Although the presence or absence of buff is not to decide our practice as to future bleeding, still, when present, it may often materially *assist* us in our judgment. If the blood, besides being buffy, is cupped, and *fringed* at the edges, we need have little hesitation in repeating the evacuation. Should the blood appear with a flat surface of buff, and the coagulum be loose, further bleeding may indeed be still necessary, but it must be practised with more caution. In the pneumonia of infants, and occasionally with adults also, leeches and cupping may be substituted for bleeding at the arm; but the circumstances warranting this are very few.

3. Moderate purging, by the neutral salts, is a useful auxiliary in the treatment of pneumonia; but the advantages of purging are, upon the whole, much less obvious in thoracic diseases, than in those of the head or abdominal cavity. An attempt to overcome decided thoracic inflammation by severe purging will always prove ineffectual, and often prejudicial. Refrigerant medicines, as nitre, (R N° 2) may be employed with great propriety. A free expectoration being, as we have said, the means which nature most commonly adopts for carrying off inflammation within the chest, it might be supposed that expectorant medicines would prove useful; but the reliance to be placed upon them is very small. Antimony and squill are the only ones of this class which can be recommended. Opium is quite inadmissible during the active stages of pneumonic inflammation. Even in

the more advanced periods of the disease, it must be given with extreme caution, on account of its tendency to check expectoration.

4. Blisters are unquestionably of the greatest importance in the treatment of pneumonia, but they should not be applied while the pulse is hard, and the blood appears cupped. It is not until the tone of the system has been sufficiently lowered by venesection, that their good effects will become apparent.

5. If the inflammation has terminated in suppuration, besides the small bleedings already recommended when the difficulty of breathing becomes particularly urgent, advantage will be derived from the continued exhibition of the tincture of digitalis. The strength of the patient must be supported by a light, nutritious diet, but wine is to be avoided. The operation of *paracentesis thoracis* is probably advisable in certain cases, both of vomica and empyema; but the observations of authors on this piece of practice are very scanty, and my experience does not enable me to supply the deficiency.

CHAP. IX.

CHRONIC BRONCHITIS.

Prevalence of Bronchial Inflammation—Literary Notices concerning this Disease—General Character of Chronic Bronchial Inflammation—its subdivisions—Causes of Chronic Bronchial Inflammation—Connection of Bronchitis with Abdominal Disease—of Dropsy consequent upon Chronic Bronchitis—Morbid Appearances—Treatment of Chronic Bronchial Inflammation by Antiphlogistic Measures—Stimulants—Opiates—Expectorants—Blisters.

THE most frequent of all the diseases of cold climates, is chronic inflammation of the mucous membrane of the bronchia, commonly known under the name of *winter cough*; and it cannot therefore but be considered a matter of great surprize that the pathology of this disease should have been so long overlooked. By all the antient writers, and by modern authors, up to a very late period, the disease was noticed indeed under the vague and unscientific denominations of *tussis*, *catarrhus senilis*, *rheuma catarrhale*, and *bastard peripneumony*, but their ideas concerning it were very confused and unsatisfactory. The nature of the *peripneumonia notha* of Sydenham, in particular, was a theme of endless controversy.

Dr. Badham, in 1808, first wrote expressly on inflammation of the mucous membrane of the bronchia, and gave to it the appropriate name of bronchitis. His views concerning this affection are very clear and just, and his work deserves to be noticed, as a pathological essay of the highest merit. The attention of the author was, perhaps, too exclusively directed to that severe but rare disease, which we have already alluded to under the title of acute bronchitis. His deficiencies indeed have been, in a great measure, supplied by the industry of later writers, among whom Dr. Hastings, of Worcester,* deserves particular mention; and the pathology of the mucous membrane of the bronchia, therefore, though far from being complete, may now be considered as having attained some degree of precision.

The general character of chronic bronchial inflammation is drawn from the symptoms of cough and mucous expectoration; but dyspnœa, attended with wheezing, is nearly always present also, and with it may be observed, a tendency to spasmodic exacerbation of all the symptoms. It is obvious therefore how closely allied are the symptoms of bronchitis to those of croup and peripneumony. To some, perhaps, it may not appear necessary to draw very minute distinctions between the inflammations of different portions of the same membrane,—still less to proceed to a subdivision of the cases of bronchial inflammation; but

* A Treatise on Inflammation of the Mucous Membrane of the Lungs. By Charles Hastings, M.D. London. 1820.

it will not, I am persuaded, be looked upon in this light, by the practical physician. He will keep in view the extreme frequency of these affections; he will acknowledge the necessity of variation in his mode of treatment, and be sensible of the utility of regulating that treatment by some sort of pathological principle. I shall offer no apology therefore for attempting to discriminate the different forms of chronic bronchial inflammation, which we meet with in practice, or even for pushing this division beyond the limits which Dr. Badham and others have hitherto assigned it. It is unnecessary to premise that these distinctions are arbitrary, and made solely with a view to practice. A gradation may be traced in nature, from the most acute form of bronchitis, which attacks suddenly, and proves fatal, perhaps, in a week, to that, the origin of which is imperceptible to the patient, and which he carries about him for a long series of years.

Three great divisions of chronic bronchitis might be made, having a reference to the state of the accompanying constitutional symptoms. Sometimes fever is present, to a greater or less degree; sometimes the constitution is wholly unaffected, and at other times, lastly, it is in the state of *asthenia*; but a more extended view of the subject will be requisite for the purposes of practice.

1. There is a species of bronchitis which is attended with considerable febrile derangement of the system, and which runs its course in about three

weeks, or a month, generally so severe as to confine the patient to bed for a part of the time. This I would distinguish by the name of *subacute* bronchitis. To those who have once suffered by it, it is apt to recur every year, and commonly about the same season. It is attended by the expectoration of puriform mucus, and respiration is performed with a wheezing noise. Occasionally, the cough occurs in paroxysms of great violence, and the disease then so closely resembles the hooping-cough, that, for a time, it is with difficulty distinguished from it, but the diseases are very distinct in their origin, termination, and treatment. Sub-acute bronchitis is to be treated on the common principles applicable to all inflammatory diseases. It requires venesection two or three times, to the extent of ten ounces each time, and is much benefited by saline and antimonial medicines.

2. This disease, if neglected in its early stages, sometimes terminates in ulceration of the mucous membrane of the bronchia, the principal symptom characterizing which, is the expectoration of a purulent matter, of a *greenish* colour and smooth appearance. This, with attention to the preceding symptoms, will partly serve to distinguish the disease from phthisis pulmonalis, where the matter expectorated usually assumes the form of globules of a white, or straw colour. The pulse is frequent and often full, while, at the same time, great debility prevails. The patient can generally take a full inspiration, which is scarcely ever possible in an advanced stage of consumption, as will hereafter be more

fully noticed. Ulceration of the bronchia generally happens to persons advanced in life. It is a disease of great danger, but is still occasionally recovered from. The ulcers are found upon dissection to be always superficial, and generally small. This disease will be assisted by a moderate exhibition of tonics, as myrrh; but upon any urgent aggravation of the symptoms, blood must be taken from the arm, to the extent of four or six ounces.

3. These cases are rare however, when compared to those which I would designate by the name of *common chronic* bronchitis, and which constitute the great bulk of all the cases of chronic or *winter* cough. The symptoms of most importance in a pathological view, are the frequent pulse, and the white tongue which attend it, and which point out, that the constitution is in a state of febrile excitement. There is great variety in the other symptoms, but a few of the leading points may be worthy of notice. When pain is complained of, it is generally referred to the head, or the iliac region. A deep inspiration will almost always be followed by a fit of coughing, but it will seldom cause or aggravate pain. The difficulty of breathing is often very trifling when the patient is sitting quiet, but it is highly increased by any exertion of walking, more particularly by going up stairs, or ascending a hill. After such an effort the patient appears gasping for breath, and ready to faint from weakness. He can lie on both sides, but the horizontal posture generally increases dyspnoea.

The cough, in common chronic bronchitis, occurs in fits, lasting several minutes; and these, in a vast proportion of cases, happen in the morning, when waking, or on going to bed at night. The irritability of the membrane is obviously increased in this disease, and exposure of the skin to the cold air proves, by sympathy, a source of irritation. In like manner, a change of weather, or the inhalation of smoke, or vapours, or the taking in of food, brings on a fit of coughing. The matter expectorated varies very much in appearance, but still more in *quantity*. Sometimes it is thick and ropy, sometimes thin and frothy, and occasionally in such enormous quantity as to excite astonishment. I have seen three pints of a thin mucus brought up in twenty-four hours, and that without any other very urgent symptom. Some attention with a view to practice is to be paid, as to whether the expectoration be easy, or difficult.

Coldness of the lower extremities is generally complained of, as was long ago noticed by Hoffman. The patient becomes weak, and loses flesh as the disease advances, and a disposition to phthisis is often suspected. The diagnosis is very important, but it cannot be explained until the symptoms and progress of that disease have been fully stated. Besides the symptoms of febrile excitement, which have been already mentioned, it will commonly be found that the functions of the stomach and bowels are impaired. There is loss of appetite, a weak digestion, an unpleasant taste in the mouth in the morning, and constive-

ness. The duration of this form of bronchial inflammation is very various. It has very little tendency to wear itself out, and, if suffered to run its own course, continues often during the whole winter, and yields only to the change of season. It is not a disease of danger.

4. There is a peculiar form of bronchial inflammation which is unattended by any symptoms of disordered constitution. The patient, on first waking, is attacked with a severe fit of coughing, which continues to harass him for half an hour after rising. It recurs occasionally during the day. It is attended with little or no expectoration, and appears to consist chiefly in an increased irritability of the membrane. But that it depends primarily on a state of inflammation is probable from this, that the affection can always be traced to cold. It is not benefited by any plan of treatment which I have been able to devise, if I except change of air.

5. Bronchial inflammation is sometimes attended, particularly in old people, with those marks of loss of tone in the system which pathologists have generalized under the term *asthenia*. This form of the affection has long been known by the name of *cattarrhus senilis*. It is marked by profuse expectoration, with a feeble and languid pulse, a disposition to sleep, and extreme weakness of the limbs. It proves fatal to many old people,—it is usually said, by suffocation, but this is doubtful. In the latter stages of bronchial inflammation of the true asthenic character, the

effusion of mucus in some measure ceases, and the patient dies *exhausted*. This form of chronic bronchitis is sometimes met with at an earlier period of life. Women who have suckled their children too long, are not unfrequently the subjects of it.

Chronic bronchitis is, certainly, for the most part, a primary disease, and attributable to cold and moisture. I have observed that foggy weather is very apt to bring it on. It is particularly tedious and severe in such persons as have led irregular lives, and indulged freely in spirituous liquors. But it frequently appears also to supervene upon other diseases, both of an acute and chronic kind, such as the febrile eruptions, chronic cutaneous affections, and diseases of the abdomen. The connection of bronchitis with disordered conditions of the abdominal viscera has long been known. Worms have been often observed to create cough. Dyspepsia, and diseases of the liver, are often attended by the common symptoms of chronic bronchitis. In some cases this connection may be accidental, but in many it is, I believe, strictly *sympathetic*;—that is to say, the disease of the bronchia has not its origin in cold, and can be relieved only by relieving the abdominal affection. The precise nature of this relation between the viscera of the thorax and abdomen, it is, perhaps, impossible to ascertain exactly, but it should be borne in mind, that it is to a certain degree mutual, and therefore, it becomes often a matter of great difficulty to determine, in complicated cases, whether the system of treatment should

be directed, in the first instance, to the relief of the thoracic, or the abdominal derangements.

Among the symptoms which supervene on chronic bronchitis, œdema of the feet and legs deserves particularly to be noticed, as there appears to be an important pathological principle involved in this phenomenon, viz. the dependence of dropsical effusion on inflammation of a mucous membrane. This portion of the pathology of dropsy has not hitherto, perhaps, been sufficiently attended to. The facts regarding it are well illustrated by a late writer on bronchial inflammation,* but his reasonings concerning them admit of some doubt.

The morbid appearances presented by the mucous membrane of the bronchia, after being long subject to chronic inflammation, do not appear to throw much light on the *ratio symptomatum*, or to direct us in any degree to the proper treatment of the disease. The membrane appears discoloured; sometimes it is of a vivid red colour, sometimes inclining more to purple. The structure is often thickened, and not unfrequently its surface is pulpy. Mucus is generally found, to a considerable extent, filling the bronchia and air-cells.

The general principles of treatment in chronic bronchitis have never been very accurately laid

* Hastings on "Inflammation of the Mucous Membrane of the Lungs." Chap. 5.

down by authors. I have always been inclined to think that it is chiefly of importance to regulate it by the state of the constitution, rather than by the local symptoms. With a view to treatment, for instance, it does not seem to be of much consequence whether the expectoration be scanty or profuse. According, therefore, as there is more or less febrile excitement, are antiphlogistic measures of greater or less activity to be resorted to. Where there is a tensive pain of the forehead, or of the iliac region, blood must be taken from the arm, and generally a single bleeding will relieve this symptom. In cases of less urgency, it will be sufficient to direct saline draughts, with a few drops of tincture of digitalis, or of antimonial or ipecacuan wine, as in the form R N° 19. The bowels should never be suffered to become costive.

Where the system is much debilitated, the tongue clean, and no thirst is present, advantage will be derived from the exhibition of ammoniacum, myrrh, acids, and the aromatic bitters. In this state of the system, narcotics, more especially opium, are not only useful, but often quite indispensable. They allay that irritation of the membrane which would otherwise prevent the patient from getting sleep. They are best given in a full dose at night. Where the irritability of the membrane is very great, with little constitutional disturbance, demulcent mixtures, (R N°s 11 and 12) with the addition of a proper proportion of the oxymel or tincture of squill, will be

found very serviceable; but the indiscriminate employment of those medicines which have been called *expectorant*, in cases of chronic bronchial inflammation, cannot be defended on any principle, theoretical or empirical.

Blisters are exceedingly useful in every form of this disease. An uniform moderate temperature, warm clothing, and a light diet, are quite indispensable. If it prove very obstinate, a change of air should be directed, which will seldom fail to be of use in the latter stages of the disease, when it may be considered as kept up, in some measure, by habit. Warm weather has a very striking influence in many cases of obstinate chronic bronchitis; and therefore, when the disease has recurred several times, and is brought on by slight vicissitudes of temperature, it may often be proper to recommend a removal to a warmer and steadier climate.

CHAP. X.

PERICARDITIS.

Pathology of the Heart — Inflammation of its investing Membrane — When first noticed — Symptoms of acute Pericarditis — Prognosis — Diagnosis — Morbid appearances — Causes — Metastasis of acute Rheumatism — Treatment of acute Pericarditis — Symptoms and Treatment of Chronic Pericarditis.

THERE is scarcely a subject in the whole range of medical literature, which opens so extensive and important a field of investigation as the pathology of the heart. It has excited the attention of physicians from the earliest times ; and in the elaborate dissertations of Morgagni concerning the morbid anatomy of the heart,* we see that every advantage had been taken of one means of arriving at a knowledge of this interesting branch of science. In the attempts, however, which were made to connect the diseased appearances of the heart, found after death, with the symptoms which occurred during life, the older pa-

* Morgagni de Causis et Sedibus Morborum per Anatomen indagatis. Lib. II. Epist. 16 ad 27.

thologists unquestionably failed; and it has been reserved for own times to infuse some portion of accuracy into this part of the enquiry. Much, however, still remains to be done; and though the difficulty of the subject must universally be admitted, still it does not appear to be, like some of the obscure and controverted points in the science of medicine, beyond the pale of legitimate investigation. These remarks apply equally to the acute and chronic diseases, to which the heart and its investing membrane are subject. The latter are very numerous, and constitute the different species of Angina Pectoris, to which our attention will hereafter be directed. The acute diseases of these parts will form the subject of the present chapter.

There is every reason to believe, that when the heart is inflamed, the primary seat of disease is the pericardium. In one or two cases, indeed, the substance of the heart has been found inflamed, without a corresponding affection of the investing membrane; but the occurrence is so rare, that it will be sufficient in this manner to have alluded to it. Inflammation commencing in the pericardium is, on the other hand, by no means unfrequent; and though it occasionally dips down a little way into the substance of the heart, still the character of the disease is the inflammation of a serous membrane, and the disease itself, therefore, is correctly denominated PERICARDITIS. Such a form of thoracic inflammation was acknowledged by many of the old nosologists; but their notions regarding it were very confused, and

the most important circumstance in its pathology was altogether overlooked ;—I mean, its connexion with acute rheumatism. The honour of this discovery is due to Dr. David Pitcairn, who first noticed it in 1788 ; and upon the strength of whose authority it was mentioned by Dr. Baillie in 1797. The first distinct account, however, which appeared in this country, of the disease, since called *rheumatism of the heart*, was from the pen of Sir D. Dundas.* Pericarditis is a primary as well as secondary disease ; but the symptoms by which both forms of the affection are characterized are so similar, that it is unnecessary to separate their consideration.

Inflammation of the pericardium is ushered in, and accompanied in its course, by the usual febrile symptoms. The local symptoms are in some measure the same with those of the common forms of pneumonia ; but such as peculiarly point out that the pericardium is the seat of disease, are the following. There is pain referred to the region of the heart, or more properly to the *scrobiculus cordis*, sometimes pungent as in pleurisy, but often described as a suffocating weight, extending to the right side. The patient complains of a violent *palpitation*, and the motions of the heart are often perceptible at a considerable distance. A strong pulsation of the carotid arteries, attended with noise of the ears and giddiness, is not an unfrequent symptom. The manner of

* Medico-Chirurgical Transactions. Vol. I. page 37. London. 1809.

the patient's breathing is to be attended to, as occasionally affording evidence of the exact seat of disease. It is often by catches, or starts, and the chest can generally be filled, though gradually. Dyspnœa is much aggravated by motion, or exertion of any kind, so as to occasion an apprehension on the part of the patient of immediate death. There is usually present, also, a short, dry, but incessant cough, aggravating the other symptoms, and frequently excited by pressure on the epigastrium. The pulse, which is always very frequent, bounds against the finger with a harsh jarring feel, at first regularly, but as the disease advances, irregularly, both in point of force and frequency. The tongue is white, and the skin often bathed in sweat, as in acute rheumatism.

Unless some degree of relief is obtained, the countenance becomes livid, the eye glassy, and the patient sinks. Should the urgent symptoms only be palliated, the disease degenerates into the state of chronic pericarditis, the symptoms of which will presently be enumerated. Under more favourable circumstances, the patient gradually recovers; but, upon the whole, the prognosis is unfavourable, as to ultimate and complete recovery. A quick pulse, and tendency to palpitation, will almost always be found to remain behind, with a strong tendency to relapse, the recurrence of the disease being, if possible, still more dangerous than the primary attack.

The diagnosis of pleurisy and pericarditis is often a matter of difficulty, although apparently there are

sufficient symptoms already detailed, to distinguish these diseases under every possible circumstance. The appearance of the countenance may sometimes be resorted to, in aid of the other symptoms. Common inflammation of the lungs frequently proceeds to a great extent, without a corresponding change of countenance ; but in pericarditis there occurs, from the very earliest periods, a peculiarly anxious expression of the features, commonly with paleness. This symptom, however, fails as a diagnostic mark between this disease and acute bronchitis, which has often, I believe, been mistaken for it ; but the error is fortunately of no practical importance.

On dissection of those who die of acute pericarditis, the membrane appears externally denser, and more opaque than natural, and numerous vessels are seen ramifying on its surface. On cutting into the sac of the pericardium, it is found gorged with serum, in which shreds of coagulable lymph are floating. Recent lymph will be found also covering the surfaces of the membrane ; and in some places the heart and pericardium will, perhaps, be seen to adhere. The muscular structure of the heart in contact with the pericardium, becomes much more crowded with vessels than in its natural state, and sometimes extravasated blood, or globules of pus, may be found dispersed through it. Along with these appearances, others are often noticed, denoting the extension of the inflammation to the diaphragm, pleura, or substance of the lungs.

Cold, and the metastasis of acute rheumatism, are the only known exciting causes of acute pericarditis. One instance of the disease, with which I am acquainted, was obviously owing to the patient having slept on a pavement, during a frosty night, while in a state of intoxication. Another, I traced as distinctly to travelling on the outside of a coach, during a cold and rainy night. But it is unquestionable, that the metastasis of acute rheumatism is by far the most common cause of inflammation of the heart. The circumstances which lead to this have never been very accurately investigated. In some instances, but by no means generally, the affection of the joints is relieved when inflammation attacks the heart. On the other hand, it has been found that a fresh accession of inflammation has sometimes come upon the joints, during the existence of active pericarditis. All ages are liable to inflammation of the heart, but it chiefly prevails between those of fourteen and thirty. Both sexes are in like manner its subjects. Persons of a broad chest and plethoric habit of body, appear to be those most particularly predisposed to it.

The treatment of acute pericarditis, supposing the disease to be ascertained with perfect accuracy, will not differ, in any material point, from that proper to be pursued in other cases of thoracic inflammation. Venesection must be promptly had recourse to, and pushed to a very considerable extent. Depletion is, for the most part, borne well in the early stages, and the blood is always highly cupped and buffy. Some

degree of caution may be necessary when there is any considerable *intermission* in the pulse; but this symptom is by no means to deter us from the vigorous employment of the lancet, should it be called for by others of an unequivocal character. Considerable benefit is often experienced in this disease from local blood-letting; and it has the advantage of being applicable, when the state of the system is unfavourable to further depletion from the arm. Fomentations in the first stages, and blisters at a somewhat more advanced period of the complaint, are exceedingly useful.

Purgatives, saline and antimonial medicines, are to be freely exhibited. Some benefit is experienced from giving small doses of mercury, in combination with other antiphlogistic measures. For this purpose the pill (R N° 20) may be recommended. *Digitalis* is of some use; but care must be taken not to push its exhibition so far as to affect the pulse, and interfere with those symptoms, by which we are to judge of the necessity of further evacuation. Opium, if advisable at all, should be given at night, in combination with *ipecacuanha*. In this manner it sometimes relieves the tickling cough, which is very harassing to the patient, and procures for him a few hours rest.

It has been already observed, that there is a state of *chronic pericarditis*, and we are next to enquire into the symptoms, progress and treatment

of this affection. Some differences of opinion have been entertained regarding the precise state of disease to which this term should be applied; and here I would, in the first place, give a caution to the student, as to the degree of importance which, in the present state of our knowledge, is to be attached to the distinctions among the chronic diseases of the heart, which pathologists have attempted to establish. It is seldom that they are observed to exist separately; and consequently their diagnostic symptoms have never been ascertained with that precision, which would warrant the expectation of their becoming applicable to practice. This observation will hereafter be illustrated when treating of angina pectoris, and the other structural diseases of the heart, but it is applicable also to the case of chronic inflammation of the pericardium.

Without wishing to deny altogether the pathological importance of that distinction between simple dilatation of the heart, and chronic inflammation of its investing membrane, which Mr. Burns has been at pains to inculcate,* I would apply the term chronic pericarditis to that state of the heart which is very often left by acute inflammation of the membrane, and found after death to be connected with adhesion of the heart to the pericardium. Such a state of the heart is frequently accompanied by more or less enlargement of that organ, and it has been noticed that this is in the area of its cavities, rather

* See "Observations on some of the most frequent and important Diseases of the Heart." Edin. 1809. Page 58.

than in the thickness of its muscular parietes. Adhesions of the heart to the pericardium have occasionally occurred, without any previous symptoms of acute inflammation, nay, sometimes, I believe, without any evidence of disease at all. It appears that habit will, in many cases, reconcile the heart to a degree of restraint in its action, which at first may have been almost insupportable to it. When the adhesions are partial and long, Dr. Baillie thinks it probable that little or no inconvenience may be felt, but when close, and extending over the whole surface of the heart, very considerable disturbance is generally produced,—so much indeed as sometimes to prove fatal.

The symptoms of chronic pericarditis are not always, it must be confessed, well defined, and many even of those which are considered of most importance, are occasionally present in hysteria and dyspepsia; but still, in a great majority of cases the diagnostic symptoms are sufficiently apparent. They are a sense of oppression about the region of the heart, often, but incorrectly termed, *palpitation*; pain, sometimes in the situation of the heart, but more commonly referred to some distant part; pulsation in the epigastrium; and dyspnœa, aggravated by the slightest exertion of the body, or any strong emotion of mind. To a person so affected, the climbing a pair of stairs, or the ascent of a hill, are insurmountable obstacles. At night the patient is disturbed by dreams of headlong precipices and rushing waters, of quick pursuit, and impossible escape. The pulse is full,

strong, and jarring, and the whole frame appears to vibrate with the systole and diastole of the heart. In the worst cases dropsy succeeds.

The duration of the disease is very various. While it often proves fatal in a few weeks, or months, it is occasionally protracted, even for years, and medicine has certainly considerable power in controuling this very formidable affection. It is satisfactory to know, that such symptoms as I have now detailed, have been in some instances completely subdued.

The following plan of treatment has been found efficacious, and it is consonant to general principles. It consists in keeping down the action of the heart by occasional purgatives, and a very light diet; in avoiding all severe exercise, and restraining, as far as possible, those emotions of mind which tend to hurry the circulation. A drain should be established in the neighbourhood of the heart, by means of a seton, which should be kept open for at least six weeks. Small doses of digitalis and calomel, in combination with extract of cicuta, (as in R N° 21) have had a well marked effect in moderating the pulse, and diminishing that general irritability of the frame, which a chronic state of disease in the heart commonly induces.

CHAP. XI.

PERITONÆAL INFLAMMATION.

Of the different kinds of Abdominal Inflammation——Characters of acute Peritonæal Inflammation——as modified by the structure and functions of the subjacent viscus——Gastritis——Enteritis——Morbid Appearances from acute Peritonitis——causes——diagnosis——prognosis——Treatment——Symptoms and Progress of Chronic Peritonitis——Morbid Appearances——Treatment.

IN the abdomen, a variety of structures are met with, all subject to inflammation; and these it will be necessary briefly to notice, before the several kinds and characters of abdominal inflammation can be justly appretiated. There is, in the first place, the peritonæum, the most extensive serous membrane of the body, lining the viscera and the muscular parietes of the abdomen. Whatever portion of it be primarily attacked, the general characters of the inflammation remain the same, receiving only some slight addition or modification from the structure and functions of the subjacent viscus. It is to Bichat we are indebted for our present notions of the general nature and modifications of peritonæal inflammation. They had formerly been confounded with diseases, commencing

in the organs invested by this membrane. Bichat first pointed out, as an important principle both in pathology and practice, that a morbid state of the peritonæum was compatible with, and frequently attended by, a healthy state of the parts which it covers. This principle had been partially known before, but never distinctly avowed, or thoroughly investigated.

The second of the structures within the abdomen, is the parenchyma of the solid viscera ; and the third is the mucous membrane of the intestinal canal. The inflammatory affections of each of these parts will require a separate consideration.

The peritonæum is subject to two kinds of inflammation, the acute and chronic, very distinct from each other in their character and progress. The acute form of peritonæal inflammation is that to which my attention will first be directed.*

This disease begins with rigors, a quickened pulse, and other marks of fever. From the commencement it is usually attended with its characteristic symptom—pain of the abdomen increased on pressure ; but it will occasionally be observed, that pain of the back is chiefly complained of for the first four-and-twenty hours. In some cases, the invasion of the disease is sudden, and the pain becomes in a

* In this and the two following chapters, I have derived the greatest assistance from Dr. Pemberton's "Practical Treatise on various Diseases of the Abdominal Viscera." London. 1806.—This useful work should be in the hands of every student.

short time almost intolerable. In others, the advance of the disease is more gradual, and the pain is felt only on pressure. At first, it is commonly confined to one spot, more particularly to the navel, but by degrees it extends over the whole abdomen. With very few exceptions indeed, the pain of peritonæal inflammation is constant. The pulse is about a hundred and twenty in a minute, varying very much in character, but for the most part contracted, and hard, or wiry. There is great thirst, and the tongue is covered with a cream-coloured mucus. The abdomen is swelled and tense. The patient lies on his back, and frequently complains even of the weight of the bed clothes. Peritonæal inflammation may exist with every possible state of the evacuations. If suffered to proceed, it usually proves fatal between the seventh and tenth day, the countenance collapsing, the pulse becoming very indistinct, and the extremities cold.

On dissection, the peritonæum generally, or in some of its parts, will be found minutely injected with blood, the convolutions of the bowels loosely glued together, and serum, (in which flakes of lymph may be observed floating) or sometimes pure pus, in considerable quantity, effused into the cavity of the abdomen. Ulceration of the peritonæum has been met with, but it is a rare appearance. The intestines are occasionally distended with air, constituting tympanitis.

Such is the general character of peritonæal inflammation, whether the omentum, or the mesentery, or

the surfaces of the different solid and membranous viscera, or that portion of it which lines the muscular parietes of the abdomen, be the chief seat of disease. Its symptoms are in some respects modified by the structure and functions of the subjacent viscus, and these modifications have been assumed by all nosologists, as the ground-work of a subdivision of this affection into several species. It is certainly a curious circumstance, considering the tendency to spread, which the inflammation of membranes, both serous and mucous, generally exhibits, that peritonæal inflammation should sometimes be so completely confined to one portion of its extent, that these nosological distinctions are applicable in practice. The particular symptoms which characterize inflammation of the capsule of the liver, will be best explained when the corresponding affection of the parenchyma of that organ comes under review. For the present, therefore, I confine my attention to the symptoms of Gastritis and Enteritis. The inflammation of the omentum, mesentery, and peritonæal coverings of the spleen, pancreas, uterus, and bladder, offer no phenomena of any particular interest.

GASTRITIS is a very rare disorder, and the few cases of it on record are primarily inflammations of the mucous, and not of the peritonæal coat of the stomach. The symptoms usually attributed to inflammation of the peritonæal coat of the stomach, are an acute pain, and sense of burning heat in the epigastrium, vomiting, increased by the mildest ingesta,

extreme debility, a remarkable anxiety of countenance, and delirium.

Inflammation of the peritonæal coat of the intestines, or ENTERITIS, is, on the other hand, the most frequent of all the forms of peritonæal inflammation, and it is also the most dangerous, and the most rapid in its progress. It has been known to prove fatal in four days. Besides the symptoms already enumerated as characterizing peritonæal inflammation generally, enteritis is distinguished by great prostration of strength, restlessness, a continual tossing of the arms, nausea and vomiting, an expression of great anxiety in the countenance, and *costiveness*. This last symptom, though not constantly, is yet so generally met with in cases where the peritonæal surface of the bowels is affected, that it may be looked on as one of the diagnostic marks of the disease. In enteritis, the pulse is quick, and hard; and the tongue has a streak of brown fur down the middle. The pain, which is usually referred to the navel, is aggravated occasionally in paroxysms, probably from spasmodic contractions of the muscular coat of the bowels. In the worst cases, delirium comes on about the sixth or seventh day, (seldom earlier), and death speedily follows.

The extreme feebleness of the pulse, the coldness of the extremities, shrunk features, hiccup, and other marks of failure of the powers of life, which occur in the last stage of enteritis, are often said to denote

that gangrene has taken place, but in a great number of instances these symptoms occur, without the slightest trace of gangrene being discoverable on dissection. Sufficient cause of death is to be found in the *extent* and *violence* of inflammatory action. When gangrenous spots do appear, it is supposed by some pathologists that the inflammation has spread to the muscular structure of the intestines.

Acute peritonæal inflammation occurs to all ages,* and at all seasons of the year. Cold, combined with moisture, is presumed to be its most common exciting cause; but enteritis has not unfrequently been brought on by causes applied more directly to the membrane itself, such as a full meal of high-seasoned food, intemperance, and accumulations of hardened fæces. It has been often aggravated, perhaps even actually induced, by strong, and especially *spirituous* cathartics. In some instances it has been owing to causes which no prudence could avert, such as intussusceptio, morbid elongations of the mesentery and omentum strangulating a portion of intestine, and a wound of the bowel in the operation of tapping. There is a particular species of peritonæal inflammation, which occurs to women after child-birth, and is generally known under the name of *puerperal fever*. Whether the local disease be primary or secondary, is still a matter of doubt; but there is strong reason

* A distinct case of peritonæal inflammation, occurring in an infant a week old, and proving fatal on the fifth day, is recorded by Dr. Garthshore, Med, Communications. Vol. II. page 44.

to believe that the affection, whatever be its nature, is contagious. Though sometimes fatal, it is seldom so severe, or so rapid in its progress as common peritonitis.

The only diseases with which I have ever seen peritonæal inflammation liable to be confounded, are colic, and affections of the kidney, probably from calculus. In regard to colic, it must be borne in mind that peritonitis has, in some cases, succeeded violent attacks of the colic, and the possibility of this conversion should never be lost sight of while engaged in establishing the diagnosis. Colic is distinguished from peritonæal inflammation by the absence of fever, by the pain occurring in paroxysms, with occasional intervals of complete ease, and by its being alleviated, rather than increased, on pressure. With respect to affections of the kidney, I have seen them attended with severe and constant pain of the whole abdomen, costiveness, nausea, and vomiting, but the pulse was slow in these cases, and pressure on the belly did not aggravate the pain.

The general prognosis in peritonæal inflammation, particularly in enteritis is, upon the whole, unfavourable. The disease, it is true, is very much under our controul at first, but if neglected, even for twenty-four hours, the mischief is sometimes irremediable. The sequelæ of the disease too are very formidable—agglutination of the bowels, dropsy, and a tendency to relapse. The particular prognosis is to be regulated almost entirely by the degree of pain which

pressure gives. This is the great criterion, both as to prognosis and treatment. To have procured a free passage of the bowels is, of course, a favourable symptom, but it is very far indeed from being decisive as to the subsidence of inflammatory action.

When the disease is once ascertained, the treatment is sufficiently simple. Purgative medicines are not to be given at first, while active inflammation is going on, but blood is to be taken from the arm to the extent of at least sixteen ounces; and if the pain on pressure continue unabated, this should even be repeated in six or eight hours, before attempts are made to open the bowels by medicine. It was long ago observed, that the blood does not always appear buffy in the early stages of enteritis. No reliance therefore can be placed on this symptom. Nor is the practitioner to be deterred by the marks of *oppression*, or apparent exhaustion, which often occur in the outset of the disease. The pulse commonly rises as the system is freed from the load which oppresses it. In addition to the bleeding at the arm, or sometimes as a substitute for it, particularly where the strength of the patient is likely to fail, ten or twelve leeches may be applied to the abdomen. They sometimes give great and immediate relief. A blister should not be applied until a later period of the disease. The practice of applying a blister in all cases of local pain, without due regard to its cause, cannot be defended. In peritonæal inflammation it is particularly hurtful, as it takes away our best guide in the administration

of other remedies. Fomentations are preferable in the early stage of the disease.

In peritonæal inflammation the great object is to diminish inflammatory action by the measures now alluded to. Internal medicines however are not to be neglected, and mild laxatives in small and frequently repeated doses, are to be preferred. Castor oil and Epsom salts (R R N°. 22, and 23,) or the infusion of senna and tamarinds of the Edin: Pharm: (R N°. 24,) may be mentioned as well adapted to the circumstances of this disease. If the stomach is very irritable, and rejects medicine in the fluid form, a moderate dose of calomel, in union with the compound extract of colocynth (R N°. 25,) will sometimes be retained, and prove useful. Frequent emollient glysters are very serviceable, and should never be neglected.

On these means we must mainly depend in the treatment of peritonæal inflammation. Effervescent draughts, the warm bath, and a tobacco injection, may be kept in view, but they are not often applicable in practice.

Chronic inflammation of the peritonæum is of frequent occurrence, and there is very considerable uniformity in the symptoms and progress of the disease. Its advances are very insidious. Occasional pricking pains over the abdomen, with a quickened pulse, and

coated tongue, give the first evidence of disease. The pain, or *tightness*, of which the patient complains, is occasionally aggravated in paroxysms of great violence. This tendency to periodical exacerbation in the pain, is an important index of chronic peritonæal inflammation. The pulse remains steadily above 100, and is often full. During the early stages of the disease, the patient continues his ordinary occupations, but complains always of an increase of pain, or soreness across the abdomen, from fatigue. There is thirst, and want of sleep and appetite. As the disease advances, the features appear sharp and contracted, and the countenance pale, sallow, or doughy. The tongue is either of a bright red colour, or covered with a thick mucus. The taking of food creates much uneasiness, particularly a sense of weight in the abdomen. There is no considerable tension in common cases, but a degree of hardness in the viscera may often be distinctly traced. Costiveness usually prevails, and increases very considerably the distresses of the patient. I have seen this go on to perfect *ileus*, (stercoraceous vomiting). Great emaciation and debility succeed, and the patient ultimately dies hectic, and exhausted. The duration of the disease varies from three, or four, to twelve months. It is full of danger. I have seen but one case recover where the symptoms were strongly marked. Relapses are to be dreaded, even though a diminution of the pulse, and of pain, should indicate a degree of improvement.

On dissection the peritonæum appears discoloured,

and often thickened to a great extent. Tuberculated accretions of different forms are found attached to it, sometimes appearing like bunches of grapes. The convolutions of the intestines are matted together, and often form with the liver, omentum, and other viscera, a mass, in which it is scarcely possible to distinguish one part from another. In many cases there is an effusion of dropsical fluid, and occasionally of purulent matter, with, or without ulceration. The subjacent viscera are sometimes perfectly healthy.

The only disease with which chronic peritonitis is liable to be confounded is ascites, or ovarian dropsy (an accidental, and by no means frequent symptom, being looked upon as the primary disease). Several persons have been tapped for this complaint. A few pints of water are perhaps discharged, but without affording any relief to the sufferings of the patient.

The causes of this affection are involved in great obscurity. I have seen it occur as a consequence of common fever, but it is doubtful if that hardness of the abdomen, which is occasionally met with in convalescence from typhus, and recovered from, is really attributable to chronic peritonæal inflammation. All ages are subject to this disease. In children it is by no means uncommon, and it constitutes one of the forms of *marasmus*, as I shall hereafter more fully point out. It appears to be connected at that period of life with the scrophulous

diathesis, and I have noticed, as a peculiarity of the disease when so occurring, that erosions will take place of the peritonæal and mucous coats of the intestines, by which a quantity of matter, which had been formed by the diseased peritonæum, finds its way into the intestine, and is discharged by stool. This form of the affection I have ventured to call the scrophulous inflammation of the peritonæum.

The method of treatment in chronic peritonitis is very little understood, but the following plan offers the best prospect of success. Topical bleeding, to the extent of six ounces, may be directed twice in the week, while the sensation of pricking pain continues. Sometimes I have found it necessary to bleed from the arm. Without free alvine evacuations, the distress becomes quite insupportable, but large quantities of purgative medicines, which are sometimes given, under the idea that the disease consists only in fœculent accumulations, are decidedly prejudicial. Some gentle mercurial preparations and blisters may be tried. In one case, I thought benefit was derived from digitalis. A light diet of milk and vegetables should be strictly enforced. Opium is often indispensable in the latter stages of the disease.

CHAP. XII.

HEPATITIS.

*Acute Inflammation of the Peritonæal covering of the Liver
——diagnosis——Inflammation of the substance of the liver
——Terminations of this Disease——Abscess——Causes of
Acute Hepatitis——Treatment——Of Chronic Hepatitis——
Its symptoms, causes, and treatment.*

THE peritonæum forming the capsule of the liver is liable to acute inflammation, and it is the most common form of hepatitis which we have occasion to observe in this country. The *substance* of the liver is also the seat of inflammation, both acute and chronic. These diseases are occasionally met with here, but are infinitely more frequent in hot climates, where hepatitis may justly be considered as *endemic*.

The peculiar symptoms which denote that the peritonæal surface of the liver is the seat of inflammation are, pain in the right hypochondrium, shooting to the back and shoulder, generally very acute, permanent, and increased on pressure; a white and dry tongue, hurried respiration, cough, and difficulty of lying on the left side. Jaundice occasionally occurs, and more particularly, it has been supposed,

when the membrane covering the concave surface of the liver is affected ; but it is not to be considered as a necessary concomitant of the disease.

Some stress has been laid on *cough*, as a symptom of acute hepatitis, because it is likely to create difficulty in distinguishing this disease from inflammation within the chest. It is sometimes loose, but more commonly dry, and appears in many cases to be owing to the spreading of inflammation from the surface of the liver to the diaphragm. A full inspiration does not always produce *cough*, though it increases *pain* ; and very generally this symptom does not appear till the second or third day of the disease. In this manner, and by the increase of pain from pressure, we are commonly able to distinguish acute hepatitis from pneumonia. The diagnosis between inflammation of the liver and spasm of the gall ducts, from the passage of a biliary calculus, will come under consideration hereafter, when the symptoms of jaundice are explained.

Whether the hepatitis of warm climates begins in the membrane or parenchyma of the liver, is of little moment, for it is abundantly obvious that in a large proportion of cases, the latter structure becomes quickly, and to a great extent, involved in the disease. The symptoms which characterize acute inflammation of the substance of the liver, are in most respects the same with those of its peritonæal surface ; but in addition to them, some degree of swelling is generally to be felt externally ; the pain is more obtuse than when

the membrane is affected ; jaundice takes place ; the urine is of a deep saffron colour ; the tongue is covered with a white, or sometimes a yellowish fur ; the pulse is frequent and hard ; the skin hot and dry ; and commonly there is nausea and vomiting, not probably from inflammation, but extreme irritability of the stomach.

In hot climates, the inflammation of the substance of the liver often advances with great rapidity, so that in a short time suppuration takes place.* In cases of hepatitis, originating in this country, abscess of the liver must certainly be viewed as an uncommon occurrence. That suppuration will take place, may be inferred from the pulse continuing full and frequent, and the pain urgent, with *rigors*. When abscess has actually formed, there will be a sense of weight in the part, with *throbbing* pains, occasional flushings of the countenance, night perspirations, and other marks of hectic fever. The further progress of the disease is subject to great variety. Adhesions sometimes form between the liver and the parietes of the abdomen ; the tumour becomes more and more prominent ; and the matter is discharged by an external opening. The usual situation of such a tumour is between the third and fourth false ribs. Abscess in the liver seldom heals quickly. Sometimes, where such adhesions have not formed, and the walls of the

* Dr. Clark, of Dominica, relates a case (Duncan's Med. Commentaries. Vol. XIV.) where suppuration began on the fifth day of the disease, and on the twenty-ninth the abscess burst, almost the whole substance of the right lobe of the liver being destroyed.

abscess are thin, the matter bursts into the cavity of the abdomen, bringing on peritonæal inflammation, which quickly proves fatal. Occasionally the matter of the abscess finds its way by ulceration into the colon or stomach; and patients have recovered where there was reason to believe that such an event had occurred.

It is by no means uncommon for abscess of the liver to form a communication with the cavity of the thorax by erosion of the diaphragm. Pus will then be discharged (generally along with bile) by the bronchia, giving rise to the very curious symptom of *bilious expectoration*, but the patient seldom recovers. The abscesses formed by inflammation of the liver are often of enormous size, capable of holding several quarts of matter. Very frequently *hydatids* are found accompanying them, and they add greatly to the danger of the disease. The pathology of these morbid productions is very little understood. They have been found in all the great cavities of the body, but more frequently attached to the liver than in any other situation.

The causes of acute hepatitis are the same with those of inflammation generally; but a very strong predisposition to it is given by hot climates, and a long course of full living with indulgence in spirituous liquors. Heat appears to have some peculiar and inexplicable influence upon the liver. To this principle only can we attribute the frequency of hepatic complications with the intermittent and continued

fevers of warm countries, and of cholera and other bilious affections in this country, during the summer and autumn months, and the general prevalence of hepatitis in hot climates.

It has been remarked in a work of great labour and merit,* that the liver in warm climates seems to be the seat of disease nearly in the same proportion that the lungs are in Great Britain. Many of those who suffer from acute and chronic hepatitis in this country, have had the foundation of the disease laid by residence in a hot climate. The predisposition to liver disease which is given by high living and spirituous liquors, though less interesting in a pathological view, is practically of far more importance, and it is applicable not only to acute inflammation of the liver, but to every form of chronic derangement of the hepatic system, whether occurring in hot or cold climates. It must not however be forgotten in practice, that genuine acute inflammation of the liver is occasionally met with in this country, where no suspicion of high living can be entertained ;—in delicate young women for instance, and in patients suffering in the latter stages of phthisis pulmonalis.

The treatment of hepatitis when it occurs in cold or temperate climates, and when it may be considered as confined altogether, or nearly so, to the investing

* Thomas's "Modern Practice of Physic." Sixth Edition. London, 1819. The chapter on Hepatitis contains many original and valuable remarks.

membrane of the liver, is to be conducted on the principles which were laid down in the last chapter, as applicable to peritonæal inflammation generally. Bleeding from the arm, and locally by leeches or cupping, with fomentations and blisters, are principally to be relied on ; but the employment of saline purgatives in small doses (R N°. 23.) is here of very essential benefit. A purgative draught (R N°. 5.) with a few grains of calomel may even be ordered immediately after the first bleeding. Purging appears to be a means of diminishing inflammatory action, very well calculated for diseases of the liver. Pathologists have imagined that the peculiar distribution of the blood in the venous system of the abdomen may in some measure account for this, By increasing the secretions of the intestinal canal, it has been supposed, with some appearance of reason, that congestion of blood in the vena portarum, and consequent distension of the liver, may be to a certain degree lessened, or prevented.

It has long been observed, that the blood which is drawn in inflammation of the liver, exhibits the very remarkable appearance of *greenish buff*, and different ideas, none of which however are very satisfactory, have been entertained regarding the cause of this phenomenon. The great danger of suppuration in the hepatitis of hot climates makes it necessary to be prompt in the employment of venesection. This consideration however appears to operate differently on the minds of some, and to induce them to employ *mercury* on the first attack. The propriety of this prac-

tice in hot climates cannot indeed be judged of by the experience acquired here, but theory and analogy seem equally opposed to it. When the febrile symptoms abate however, recourse may be had to this remedy, in the manner which will presently be noticed. It is seldom perhaps that it is absolutely requisite in the acute hepatitis of this country, but under proper management, it may be resorted to even here, in the latter stages of the disease, with some prospect of shortening the convalescence.

The term CHRONIC HEPATITIS is not confined strictly to that state of slow inflammation of the liver which is attended by fever, and which terminates like other inflammations in suppuration, though such a disease exists, and is by no means uncommon, but it is extended in common language so as to include different chronic affections of the liver, which may or may not have their origin in inflammation. It does not appear necessary with a view to practice, to attempt any minute distinctions between the different chronic diseases of the liver, although in a pathological point of view, it must certainly be considered a matter of considerable interest. Were it even possible to ascertain during life, the symptoms by which they could be distinguished from each other, it does not appear that we could as yet apply our knowledge to the discrimination of remedies. The appearances which the liver presents in cases of chronic hepatitis

are simple enlargement without alteration of structure, enlargement with increased hardness, or præternatural softness and flaccidity of its substance, a small and contracted state of that organ, an unhealthy mottled aspect of its peritonæal coat or an ash coloured hue of its substance, abscesses, and lastly, various kinds of tubercle. Of all the modifications of chronic disease of the liver, the most important is tubercle.*

The symptoms of chronic hepatitis are various, but at the same time in many cases so obscure, that while persons have been suspected of it, whose livers were perfectly sound, others have died, in whom the disease had remained unsuspected during life. The characteristic symptoms of the disease are a sense of weight or dull numb pain in the right side or back, with pain at the point of the shoulder, a sense of weight or weariness in the right arm, a sallow countenance, and yellow tinge of the conjunctiva. In some cases, the enlarged liver can be distinctly felt under the finger. The pulse varies in point of frequency, but is often intermitting; the tongue is white, and the appetite impaired. The urine frequently deposits a pink sediment. Venous hæmorrhages take place from the stomach and intestines, referable probably to the difficulty which the blood finds in passing through the vena portæ. For the

* This portion of the Morbid Anatomy of the Liver has been examined by Dr. Farre with great attention, in a work expressly dedicated to that subject.

same reason the external veins of the abdomen appear swollen. Pimples break out on the nose and forehead, and the face acquires a bloated appearance. Languor, dejection of spirits and sleepiness are often noticed.

The observations already made on the causes of acute hepatitis apply equally to this form of the affection. It is sometimes the result of acute inflammation, but it sometimes also precedes it. Enlargements of the liver have been the consequence of long continued intermittents. Chronic hepatitis may last a long time, but in most cases it sooner or later ends in dropsy, which proves fatal. The prognosis therefore should always be guarded, particularly in elderly subjects. The probability of success in the treatment of the disease will depend partly on the state of the constitution, and partly on the extent of morbid alteration which the *structure* of the liver has undergone.

The means of relief are comprised in a course of regular moderate purging ; gentle doses of mercury pushed so as to affect the system ; occasionally the exhibition of bitters and acids, with a light diet, and abstinence from all fermented and distilled liquors. Dr. Pemberton speaks highly of the efficacy of the extract of taraxacum (R N°. 26.) Removal to a cold climate is often found indispensable in the chronic affections of the liver, which occur in India and the West Indies.

The chief reliance, as far as medicine extends, is of course to be placed on purging and mercurials. The natural purging waters, as those of Cheltenham, are well adapted to this complaint, but the Seidlitz, Epsom or Rochelle salts, in doses so regulated as to keep up a gentle but constant action on the bowels, are equally effectual. Calomel or the blue pill may be given in small doses at night, but commonly it answers better to direct a scruple or half a drachm of the strong mercurial ointment to be rubbed on the side every night, till the mouth be touched. This effect should be kept up, though cautiously, for several weeks. If feverish symptoms appear, or are aggravated under the use of this remedy, it should be immediately relinquished.

CHAP. XIII.

INFLAMMATION OF THE MUCOUS MEMBRANE OF THE ALIMENTARY CANAL.

Liability of this membrane to inflammation both acute and chronic—Aphthous Diarrhœa of Children—Inflammation of the mucous membrane of the stomach in adults — of the mucous membrane of the small intestines in adults — of Dysentery—its causes—Symptoms — Morbid appearances—Treatment—Symptoms and treatment of Chronic Dysentery.

THE pathology of the mucous membrane of the alimentary canal is a subject of great extent and importance, but it has not yet been investigated with all the accuracy which it deserves; while some parts of it are well understood, others are involved in a degree of obscurity which it will require a long course of observation to clear up. One of the most obvious of its general principles, is the great liability of the membrane to inflammation. This occurs both in an acute and chronic form, as an idiopathic affection, and as supervening on other diseases,—in adults, and in children. There appears to be a peculiar tenderness and susceptibility of inflammation in this membrane during the first years of life, and

this points out the great importance of regulating the diet of children with the most scrupulous care.

The mucous membrane of the intestinal canal, as has been remarked by Dr. Baillie,* is more disposed to become *ulcerated* than any other membrane of similar function in the body. It is difficult to assign a satisfactory reason for this; but it probably depends on some minute difference of structure. There is a good deal of resemblance, observes this author, between the structure of the inner membrane of the trachea, and that of the urethra, and their secretions likewise are not very different. The inner membrane of the intestines, however, has a structure and secretion peculiar to itself.

As a general principle it may be stated, that inflammation occurring in any one part of the mucous membrane of the alimentary canal, is apt to spread to others. Thus it is, that when we observe aphthæ in the mouth, we may expect, on dissection, to find ulceration of the ileum. But it is to be observed, also, that the appearances of inflammation are in some cases altogether confined to one portion of its extent. It is not uncommon, for instance, to find ulceration of the ileum terminating by a distinct line at the valve of the colon, and the mucous membrane of the large intestines altogether free from disease. I shall now describe, very briefly, the symptoms and

* Morbid Anatomy. 5th Edit. Page 169.

progress of the inflammation of the mucous membrane of the intestines, as it occurs at different periods of life, and in different parts of the membrane, but without pretending to fix, with any degree of accuracy, the precise portion of it occupied by the disease.

Infants are subject to an inflammatory affection of the mucous membrane of the alimentary canal, generally classed as a species of diarrhœa, but known also by the name of aphtha, or *the thrush*, from a symptom which attends it in one of its stages. It chiefly occurs between the fourth and eighth month, and among such as are fed wholly or partially upon spoon meat. There is reason to believe, that it is always connected with an improper diet. It is characterized by vomiting, fœtid eructations, and pain, apparently referred to the epigastrium; tormina, diarrhœa, and some degree of tenderness of the belly on pressure. The stools are green, and slimy, or tinged with blood. Frequently they are ejected with great force. As soon as any food is taken into the stomach, the child has a motion, giving the appearance as if it passed immediately through the bowels. As the disease advances, the tongue becomes red; the mouth is covered with aphthæ, and the verge of the anus appears inflamed. The brain also becomes affected, illustrating that important pathological principle which I had occasion to allude to, when treating of the diagnosis of hydrocephalus. The child is frequently drowsy, before the aphthæ appear. This symptom is vulgarly called sleeping for the thrush.

Coma is occasionally observed to come on, towards the termination of the complaint.

This disease is a true acute inflammation of the mucous membrane of the bowels. On dissection there appear, in various parts of the inner surface of the intestines, particularly the ileum, irregular patches of inflammation, slightly elevated above the surrounding parts, and often covered with minute vesicles and ulcers.* It often proves fatal in a short time, and requires, therefore, great attention in its early stages. The treatment should be begun by an emetic, consisting of four grains of ipecacuan. Small doses of castor oil, or of rhubarb and magnesia, should then be given frequently, while the urgent symptoms continue. Mucilaginous and anodyne injections may be thrown up, with the view of sheathing the lower parts of the inflamed membrane. A warm bath is frequently serviceable. Great attention should be paid to the diet of the child, which must consist altogether of milk, or of the lightest farinaceous preparations.

An affection, very similar to the preceding, is met with in children from the period of weaning, as late as the fourth or fifth year of life, and even later. It is attributable, I believe, in most cases to an improper course of diet; very often to a diet composed of

* Vide Dr. Abercrombie, on the Pathology of the Intestinal Canal. Ed. Med. and Surg. Journal, July, 1820. Page 326. A valuable paper, from which I have derived much useful information.

a larger proportion of animal food, than the stomach at that age is capable of digesting. It is of a more chronic nature than the *aphthous diarrhæa* of infants at the breast. It frequently goes on to complete emaciation, and it constitutes, in fact, one of the forms of the atrophía of children,—a disease which has received the various names of *tabes mesenterica*, *marasmus*, and infantile remitting fever.

On dissection, in these cases, the mucous membrane of the bowels is found extensively ulcerated, and the mesenteric glands more or less enlarged ; but this last appearance is probably dependant on the former. Whether there is a disease of the mesenteric glands, primary, and independent of disease in the intestines, and how far it may be looked upon as a frequent occurrence, are points in pathology which do not appear to have been hitherto very accurately investigated.

The mucous membrane of the stomach is liable to be affected by inflammation, in consequence of acrid matters swallowed. It has been supposed that arsenic proves fatal, by bringing on inflammation of the stomach ; but Mr. Brodie has shewn the incorrectness of this as a general proposition. In some cases, indeed, there can be little doubt that, after a certain time, inflammation of the mucous membrane of the stomach does come on in consequence of arsenic, and the case published by Dr. Roget * may be brought

* Medico-Chirurgical Transactions. Vol. I. 1811.

forward as an instance ; but even here, the symptoms of high nervous irritation predominated greatly over those of the local inflammation. Dr. Baillie states,* that on dissection, an extreme degree of redness appears in the inner membrane of the stomach. Portions of it are sometimes destroyed, and occasionally, on some parts, a thin layer of coagulable lymph has been observed to be thrown out.

Inflammation of the mucous membrane of the intestinal canal occurs in adults, both as an idiopathic affection, and as symptomatic of other diseases,—in an acute as well as chronic form. The symptoms by which it is characterized are not always very distinct, and hence it is, that the disease, though by no means uncommon, has hitherto remained without any appropriate designation from nosological writers.

It is attended with a diffused soreness over the whole abdomen, rather than with pain, This is sometimes increased on pressure, but never to the extent that prevails in peritonæal inflammation. There is no considerable tension in the belly. The pulse is quick, with thirst, *languor*, and considerable febrile oppression. The tongue is *red*, and *smooth*, and eruptions take place about the lips. Vomiting is frequently noticed, with loss of appetite, indigestion, and irregularity in the alvine evacuations. Diarrhœa is almost uniformly present, and

* Morbid Anatomy. Page 147.

the stools are slimy, and tinged with blood. An increased secretion of mucus from the intestines constitutes, indeed, one of the principal features of the disease. It must be confessed, however, that in the appearance of the evacuations there is considerable diversity. In some instances inflammation exists to a considerable extent, while the motions differ but slightly from those of common diarrhœa. Nothing perhaps more strikingly distinguishes this complaint than that degree of morbid irritability of the whole intestinal canal, by which food, even of the lightest kind, or a little cold water taken into the stomach, stimulates the rectum to immediate contraction.

The disease is always tedious, but not commonly fatal. It occasionally proves so by bringing on peritonæal inflammation, or it sometimes passes into a chronic state, in which the patient at length sinks exhausted. The chronic form of the affection is marked by pain of the abdomen, diarrhœa alternating with costiveness, increasing weakness and emaciation, hectic fever, and a tongue præternaturally red, or aphthous. It is certainly a curious circumstance, that the appetite, in this state of disease, often continues good.

The appearances on dissection vary very much with the degree of violence in the inflammatory action, or what is nearly the same thing, with the period of disease at which death takes place. Some-

times we observe only an increased redness of the whole membrane; at other times irregular patches of inflammation may be traced, elevated sensibly above the sound parts. The lower end of the ileum has been long observed to be the most common situation of these morbid appearances. Ulcers are frequently met with of an oval shape, and having elevated edges. Sometimes a considerable extent of the inner membrane of the intestine is seen completely stripped from the muscular coat, or hanging attached to it in tattered shreds. In a few cases the ulceration perforates the peritonæal coat, and a portion of the contents of the intestine passes into the general cavity of the abdomen, producing inflammation that speedily proves fatal. Inflammation of the intestines sometimes, although rarely, advances to mortification.

The causes of this affection of the internal membrane of the bowels are not very well understood. A disposition seems to be given to it by irregular habits of life, and one attack certainly favours a recurrence of the complaint. I have seen it in its idiopathic form, arising from accidental exposure to cold and moisture, but it is much more commonly witnessed as supervening on other diseases. It appears in the progress of continued fever, consumption, and all diseases attended with hectic fever, and it is one of the most frequent sequelæ of measles. It would seem indeed as if inflammation and ulceration of this structure readily took place,

whenever the system was in the state, either of very high, or very long protracted inflammatory excitement.

If the disease comes under treatment in its early stage, great advantage will be derived from taking away ten or twelve ounces of blood from the arm. This I have several times seen to give an immediate check to the disease. Six drachms of castor oil should then be administered, and the effect kept up by the same medicine in smaller doses, according to the form (R N°. 27.). The sulphate of magnesia, with a few drops of tinctura opii, (R N°. 28.), will often be found useful under these circumstances. Starch injections with laudanum may be recommended where the tenesmus is very troublesome, but I do not think they contribute much to the removal of the complaint. During the whole course of the disease it is necessary to assist the action of the bowels by some mild purgative; but as the feverish symptoms subside, and the diarrhœa lessens, a gentle tonic will be useful, and after giving trial to a great variety, I have found none answer the purpose so well as myrrh, four grains of which may be added to the draught (R N°. 28.). Particular attention should be paid to the diet of the patient, which should be of the lightest kind. All fermented liquors, and at first, broths also should be strictly prohibited. When the disease has assumed a chronic form, and when we have extensive ulceration to contend with, the treatment is very precarious. Astringents and bitters, with laudanum, are often indispensable with

the view of checking the diarrhœa, but the astringent tinctures should carefully be avoided. Catechu appears to me to be less irritating than any of those to which I have given trial. A pill consisting of one grain of calomel with the extr: conii, (R N^o. 29.) may be given at night with considerable advantage. Change of air may be advised, and a milk diet. Under this treatment I have seen many very unfavourable cases gradually recover.

DYSENTERY is a disease closely allied in its symptoms to that which was last under examination, and though it would be probably going too far to say, that in cases of mild dysentery there is always inflammatory action of the vessels of the mucous membrane of the intestines, yet in severe cases of the disease, this certainly happens, and there can be no great error in considering dysentery as at all times arising from or strongly tending to, such a state. This view of the *proximate cause* of the disease is borne out by a consideration of its remote causes, of its symptoms, and of the efficacy of a treatment similar to that which is adopted in other inflammatory affections. Dissection also leads to the same conclusion, for ulceration and mortification are commonly met with, as in the inflammations of other parts. We presume that in dysentery the principal seat of disease is the inner membrane of the *great* intestines, for morbid appearances chiefly present themselves in that part of the alimentary canal.

Dysentery is peculiarly the disease of warm climates and seasons. Between the tropics it often rages with a degree of violence, of which no adequate idea can be formed from the instances of the complaint which are witnessed in this country. A sudden check to perspiration is perhaps the most common of its exciting causes. The night dews of hot countries are therefore particularly to be guarded against; but excessive fatigue and long exposure to the direct rays of the sun appear in some cases to have brought it on. Some stress was at one time laid upon irregularity of diet, (such as eating abundantly of ripe fruit) as tending to dysentery, but its influence has probably been over-rated. That contagion has occasionally operated as a cause of this disease, as in camps and on board slave ships, cannot, I presume, be questioned; but neither in this country, nor in tropical climates is dysentery contagious under common circumstances.

The characteristic symptoms of dysentery are gripping pains of the bowels, and a frequent desire to go to stool, the evacuations being watery, mucous, or bloody, and without any admixture of natural fæces. The patient perpetually complains of a *load* in the intestines, which he endeavours to throw off by violent efforts of straining, and though he feels them to be ineffectual, he is unable to resist them. Small lumps called *scybala* are sometimes passed, but the appearance is very rare, and of no particular importance.

This state of disease in the alimentary canal is always accompanied by fever ; in many cases of a highly inflammatory character. The pulse is very frequent; the mouth and fauces dry and clammy. The tongue is covered with a dark fur in the centre, or when much bile is secreted, with a yellow fur at its posterior part, or it is red and polished. In severe cases the stomach becomes very irritable, the mildest fluids being rejected, while an unceasing thirst prevails; or that state of sympathetic irritation in the whole tract of the alimentary canal takes place, by which *tormina* and *tenesmus* immediately succeed the swallowing of the blandest liquids.

The nervous system suffers also severely. Nothing appears to weaken the body so much as dysenteric purging. In very bad cases, hiccup, cramps of the gastrocnemii, and strangury occur; and great exhaustion of power is evinced in the staggering or giddiness, and even syncope, which take place when the patient is brought into the erect posture. The duration of the disease is subject to great variety. The acute dysentery of hot climates sometimes proves fatal in a few days, but the more important circumstance to be kept in view is the disposition of the disease to assume that *chronic* form, which I shall presently notice.

In very severe and protracted dysenteries, dissection exhibits the inner membrane of the great intestines thickened, and formed into small irregular tu-

bercles of a white or yellowish colour, with thickening of the peritonæal and muscular coats. In some instances, patches of the membrane have been observed in a state of high inflammation. Occasionally it is found abraded or extensively ulcerated. This appearance has been seen to extend to the small intestines. In tropical dysenteries the colon has sometimes been found decidedly in a state of mortification; and fæces have even escaped through the mortified gut into the cavity of the abdomen. With these which are the true dysenteric appearances, marks of peritonæal inflammation are not unfrequently united.

The treatment of dysentery is to be regulated by a consideration, first of the tendency to inflammation which exists in the mucous membrane of the intestines; secondly, of that apparently spasmodic contraction of the muscular fibres in contact with the diseased membrane, by which the fæces are retained; and lastly, of that morbid increase of irritability in the whole tract of the alimentary canal, which prevails in this as well as other affections of its mucous membrane.

If the pain be constant and severe, and the pulse strong, blood should be taken from the arm, particularly in a case which comes under treatment during an early stage. But the employment of purgatives constitutes the most important part of the treatment in dysentery. This must be steadily persisted in, until *fæcal* evacuations have been produced, and that

sensation of load in the bowels compleatly removed, which leads to the effort of straining. Then, *and not until then*, may the practitioner desist from the free use of his cathartics. Almost every kind of purgative medicine has been tried, and at different times recommended. Provided a due effect be produced, it does not appear to be of much consequence which of them is selected, but the liquid *form* is generally to be preferred. A pill of six grains of calomel, followed immediately by an ounce of the sulphate of magnesia, will commonly be found to answer well. In some cases, the oleum ricini may be preferable. If the stomach rejects these medicines, some other form of cathartic is to be chosen, but opium is not then to be given with the view of allaying irritation. Purgative enemata are found insufficient to overcome the disease.

When proper fœcal evacuations have been procured, it will generally be proper to continue the same medicines in smaller doses (R N°. 23 and 27.) but if after that, pain and diarrhœa continue, anodyne draughts, and mucilaginous anodyne injections will be found very useful. The pulv. ipec. comp. either in the dose of fifteen grains at bed time, or of six grains every six hours is well adapted to this state of the disease. It promotes perspiration, a proper attention to which is very requisite during the whole course of the complaint.

In hot climates, the exhibition of mercury, pushed so as to produce salivation, has been supposed by

some* to be an effectual method of putting a check to the advances of the disease. The testimonies in favour of this practice are certainly very strong, but at the same time it is to be observed, that we have no reason to believe that a vigorous and well regulated employment of the means already recommended, is less efficacious in hot climates than we find it in our own.

Chronic dysentery is the sequel of the acute stage. It is sometimes connected with structural derangement, particularly ulceration of the mucous membrane of the bowels, but at other times it appears to be only a continuance of that diseased action previously established. In the former case purulent matter may sometimes be detected in the motions, but, for the most part, the local symptoms will only differ in the degree of their violence from those of the acute stage. This is a very dangerous form of disease. When the membrane is *extensively* ulcerated, extreme weakness and emaciation follow, and the patient is worn out by the incessant discharge which is kept up. In such a state, the slightest irregularity of diet, or regimen, aggravates the symptoms. Ulceration of the intestines has been supposed to heal with difficulty under all circumstances, but it is obvious that the healing process will go on most favourably, when a light, unirritating, and easily digested food is taken. A gentle action should be kept up also in the bowels, so as to prevent accumulation,

* See a Paper by Dr. Fergusson, in the Medico-Chirurgical Transactions. Vol. II. Page 182.

and distension. Hence we may see the propriety of directing an occasional dose of rhubarb and calomel (R N°. 16.), or of castor oil, when there is any considerable degree of griping pain.

When the circulation is languid, and the constitution much weakened, it is reasonable to suppose that the local action of ulcers will also be weak and indolent, and that it may be improved by such medicines as promote digestion, and give *tone* to the system.* This conclusion is supported by experience, which has abundantly proved the benefit derived in some cases of chronic dysentery attended with ulceration, from the exhibition of a decoction of bark, myrrh, the aromatic confection, balsam of copaiva, and other stimulant and tonic drugs.

In chronic dysentery, when the evacuations are copious, and unattended with pain, and, probably, kept up by an irritable state of the membrane, astringents, absorbents, and opiates may be required; but in every case their effects are to be carefully watched, and omitted altogether, if they bring on tormina. It not unfrequently happens that the patient gradually recovers his strength, appetite, and flesh, during a moderate state of diarrhœa. In some instances, it is found that small doses of mercury (either in the form of Hydr: cum creta, Pil Hydr:

* Consult Bampfield's Practical Treatise on Tropical Dysentery, which contains a very full and judicious exposition of the varieties of the chronic form of the disease, and of the principles of its treatment.

or Calomel) contribute to an improved appearance of the secretions of the intestines. The complication of dysentery with chronic hepatitis, which is occasionally met with, will be an additional motive for the exhibition of mercurial alteratives.

Such are the principles upon which the treatment of chronic dysentery is to be conducted. They should be well understood, because an injudicious practice may do much harm, though the best regulated may prove ineffectual.

CHAP. XIV.

RHEUMATISM.

Symptoms of Acute Rheumatism—Disposition to Metastasis—Causes—Seat of Rheumatism—of the Rheumatic Inflammation of the Synovial Membrane, or Arthritis—Principles of treatment in Acute Rheumatism—of Chronic Rheumatism—Varieties in the symptoms of this Disease—Causes—Remarks on the modes of treatment applicable in the several varieties of Chronic Rheumatism.

RHEUMATISM occurs both in an acute and chronic form; and, though there is probably a close analogy in the pathology of these affections, yet in their symptoms and mode of treatment, sufficient difference exists to entitle them to separate examination. It is certainly a curious circumstance, considering the frequency of this complaint, that there should still be so much obscurity in regard to several of the fundamental doctrines connected with rheumatic inflammation. This may be partly explained, perhaps, from its being a disease of so little danger, as never to have received any elucidation from the labours of the morbid anatomist.

Acute rheumatism is ushered in by a sudden attack of rigors, followed by the usual symptoms of pyrexia.

It is particularly distinguished by the great pain and swelling which affects the joints, coupled with an utter inability to move them, and very commonly with considerable redness. The joints are tender to the touch. The pains are aggravated towards night, and, for the most part, at all times by external heat. The swelling, except in a very few cases, does not take the form of the joint, but is diffused over the cellular membrane in its neighbourhood. Several joints are commonly affected at the same time, but one of the most singular phenomena of rheumatic inflammation is the strong tendency which it exhibits to *shift its situation*, to abate in one or two joints, often very suddenly, and to become as suddenly violent in another, and a distant part.

The accompanying fever presents several important peculiarities. The pulse seldom exceeds 100, or 110, in the minute, but instead of the hardness which characterizes inflammatory fever, it is full, soft, and, as it were, *round*. The skin, instead of being hot, harsh, and dry, is commonly in a state of profuse perspiration, and a remarkable acid odour of its secretion may be noticed. The tongue is always deeply loaded. The papillæ appear elongated, and covered with a thick and abundant mucus. The functions of the brain are in a peculiar manner exempt. Head-ache is seldom present in any form of rheumatic inflammation, acute or chronic; and delirium is almost unknown. There is great thirst, but rarely any nausea or vomiting. The bowels are costive, though easily made to move. There is

a sallowness in the aspect and a peculiar expression of the countenance observable in acute rheumatism, sufficiently distinct from that of common febrile anxiety.

Different as are the local and constitutional symptoms from those of other phlegmasiæ, the terminations of rheumatic inflammation are no less peculiar. The local inflammation may run high, but it never proceeds to suppuration. It is seldom indeed that any permanent injury is done to the joint, for if effusions of a transparent gelatinous fluid into, or around the sheaths of tendons and the capsular ligaments, take place, they are commonly absorbed in a short time. The most important consideration in this view of the subject, is the disposition which exists in a state of acute rheumatism to an affection of some internal organ by *metastasis*, or rather by extension of inflammation, for it is not often that the joints are relieved when this event takes place. The organs chiefly liable to be so affected are the lungs and heart,* and it is from this occurrence alone that any danger in the progress of the disease is to be apprehended. The symptoms are those of common thoracic inflammation, the tendency to which therefore constitutes an important object of attention in the treatment of acute rheumatism. It has already been remarked that the circumstances which lead to

* I once saw a distinct case of an affection of the *brain* by metastasis of acute rheumatism, assuming the very remarkable character of *delirium tremens*.

this extension of rheumatic inflammation to an internal organ have never yet been accurately investigated.

No disease with which I am acquainted is so liable to relapse on slight occasions as acute rheumatism. Going out a little too early in the open air, too much exercise of a particular joint, or an excess in diet have frequently brought back the disease in all its former violence. Acute rheumatism is characterized also by a tendency to recurrence after a long interval. Those who have once suffered from an attack of the disease should be particularly careful therefore to avoid what we shall point out to be its exciting causes, or to obviate them by proper attention to cloathing. Rheumatism is certainly the most tedious of all the acute inflammations. In many cases it appears to run a defined course, which does not admit of being shortened by any process of treatment, and in a certain length of time to wear itself out. This is seldom less than a month, or longer than six weeks. That the acute sometimes terminates in a state of chronic rheumatism cannot be doubted, but this, instead of being a frequent occurrence, as is often imagined, is, in fact, rare, and though the recovery from genuine acute rheumatism is tedious, it is usually perfect.

Children are very seldom the subjects of acute rheumatism. It most commonly occurs from the age of puberty to the thirtieth, or thirty-fifth year of life, and chiefly affects those of sanguine tempe

rament, and plethoric habit of body. It prevails principally in the months of December and January, and least frequently in August and September. Cold, with moisture, particularly where long applied, is certainly the most frequent, and perhaps it might be added, its only exciting cause. Hence it is that we find it attributed, in a large proportion of cases, to sleeping in damp beds, living within damp walls, sitting in damp clothes, or working in damp situations.

Very little is known regarding the precise seat of inflammation in acute rheumatism. It appears to be situate primarily in capsular ligaments, tendinous sheaths, and aponeurotic expansions ; but the cellular membrane around the joints probably partakes of inflammation in the active form of the complaint. In this, perhaps, consists the principal local distinction between acute and chronic rheumatism. In some instances of disease, not usually distinguished from those of common rheumatism, the swelling will be found to take the exact form of the joint, or of a bursa in its neighbourhood ; and the affection is then simply inflammation of synovial membrane. By some pathologists it is imagined that such a disease is altogether distinct from rheumatism, and the term *arthritis* has been applied to it. It occurs both with and without fever. It appears to differ from rheumatism in its causes, progress, and treatment, as well as in its symptoms. It has been traced, for instance, to repelled gonorrhœa. It exhibits less tendency to shift its situation from

one joint to another, and it is more under the controul of local remedies than genuine rheumatism. As this subject however is very obscure, but still more, as it has not yet received those illustrations which may probably throw considerable light upon the nature of the affection, I simply state the circumstances, without venturing an opinion on the pathological principle which they involve.

If an opinion were formed from the various, and even opposite modes of treatment which have been recommended in acute rheumatism, not upon theoretical grounds, but after ample and successful experience, it might rationally be supposed, that the disease occurs in the most opposite states of the system; but this opinion is not borne out by the observation of symptoms. I believe the better conclusion to be, that acute rheumatism is at all times a tedious, and rarely a dangerous disease; that a large proportion of cases would recover with very slight care, and that, in many, medical treatment is of little further service than as obviating the tendency to internal inflammation. It cannot, I think, be questioned, but that with regard to the power of *cutting short* the disease, a considerable difference exists between rheumatic and common inflammation.

Three plans of treatment have been advised in the acute rheumatism. 1. The usual antiphlogistic system, consisting of blood-letting, purgatives, saline and antimonial medicines. 2. Opium and calomel. 3. Bark.

The authority of Sydenham is in favour of the first, and though it is impossible to call in question the very remarkable efficacy of opium, or of opium in combination with calomel, in many cases of this disease, yet the plan of treatment which that judicious physician employed, will be found, upon the whole, the most generally efficacious. The important distinction to be kept in view between the practice in acute rheumatism and that in other inflammatory affections is, that while in the latter, a continuance of the same symptoms calls for a repetition of the same evacuation, it does not do so in the former. To subdue rheumatic inflammation by the lancet alone (even if possible) would be to weaken the system unnecessarily, for it is to be remembered that, in this disease, the inflammation is not in an organ essential to life. Sixteen ounces of blood may at first be taken from the arm; and repeated two days afterwards, if the pain continues urgent. The blood will always be found highly cupped, and buffy. The further treatment of the disease may commonly be entrusted to purgatives, antimony, and nitre, but venesection must again be had recourse to at any period of the disease, if internal inflammation supervenes.

When the febrile symptoms have somewhat abated, advantage is sometimes obtained from the exhibition of colchicum, but it is in the chronic forms of rheumatism where the efficacy of this medicine is best displayed. The power of opium, and of calomel in combination with opium, in repressing acute rheumatic inflammation, is unquestionably very great,

and, under certain circumstances, it may be advisable to trust altogether to them. They require to be given in full doses (R N°. 30.) It will seldom be found that calomel, even in large doses, affects in acute rheumatism the salivary glands.

Bark was introduced as a remedy in acute rheumatism, with the highest encomiums, by Dr. George Fordyce, and Dr. Haygarth, but, as far as my observation extends, it has in no instance answered the expectations which might have been formed of it from the testimony of these authors. It has appeared to me to be of use only in the latter periods of the disease when considerable pain and stiffness of the joints are frequently found to exist, but with a natural state of the pulse and tongue.

In the true acute rheumatism local applications to the affected joints are of little service;—or rather, in most cases, of no service at all. This remark applies equally to fomentations, cold lotions, rubefacient liniments, and blisters. Not so however is it with regard to diet. In acute rheumatism, the functions of the stomach are often little impaired, but a free indulgence of the appetite protracts the complaint, frustrates the effects of other remedies, and has certainly contributed to give to rheumatism that character of tediousness, which makes it the opprobrium of physic. Broths and jellies are to be prohibited, and a cool, spare, vegetable diet strictly enforced.

CHRONIC RHEUMATISM is of constant occurrence, and this circumstance alone is sufficient to point out that it is not often the sequel of the acute form of the disease. It is characterized by pain of the joints aggravated on motion, stiffness, thickening of the structures in the vicinity of the joint, or increased effusion into the synovial bags. It is readily distinguished from the acute rheumatism by the want of inflammatory fever, and of redness in the affected part.

1. Three species of chronic rheumatism may be distinguished. The first is that which is connected with a state of febrile excitement in the system, and which would be more correctly designated by the term *subacute rheumatism*. It is known by the pains occasionally shifting their situation suddenly, as in the acute form of the disease, and by their being increased by warmth, and especially, at night, by the warmth of the bed. The frequent occurrence of œdema along with the affection of the joints, may serve to distinguish this from the other species of the disease. Those joints which are surrounded by a large mass of muscular substance, and which are the most constantly exerted, are especially liable to it, such as the hip, and the joints of the lumbar vertebræ. This state of chronic rheumatism is accompanied with a white tongue, thirst, a quickened pulse, and a costive state of the bowels.

2. The second species of chronic rheumatism is marked, not by any degree of excitement in the sys-

tem, but by the absence of constitutional symptoms. Here it is not unreasonable to believe, that there may be a loss of tone in the vessels of the affected part. It is not so common as the preceding species, but it sometimes follows it. Pain in this form of the complaint is often not at all felt except on motion, or on occasion of changes in the heat or moisture of the atmosphere. It is relieved rather than increased by the warmth of bed. The pain and stiffness are permanent. Spontaneous coldness of the limb and even a degree of paralytic torpor are often complained of by the patient. The pulse is seldom quick, or the tongue white.

3. The third species of chronic rheumatism is attended with permanent derangement in the structure of the joint, and it is that form of disease which has been ably described by Dr. Haygarth under the title of *Nodosity of the Joints*. The ends of the bones, the periosteum, and ligaments become thickened, and nodes form upon them, often to such an extent as to distort the joint in the most unsightly manner. This form of rheumatism chiefly affects the fingers, but I have seen it also in the knees and ancles. It is principally met with in women, after they have passed the period of menstruation. It is attended with pain of the joint, particularly severe at night.

The usual causes of chronic rheumatism are exposure to cold, and moisture, or to partial currents of air, strains, and bruises; but it not unfrequently arises also from the employment of mercury. Chro-

nic rheumatism affects not only the joints, but the periosteum in every part of its extent, and occasionally as it would appear the substance of muscle. It sometimes gives occasion to difficulties in diagnosis. Thus lumbago has been mistaken for nephralgia or lumbar abscess; rheumatism of the intercostal muscles for pleurisy; and sciatica for ulceration within the cavity of the acetabulum.

No general rules of much importance can be laid down for the guidance of the student, in the treatment of chronic rheumatism. Some attention must be paid to the state of the constitution as directed in page 198, and perhaps more can be done in that way towards the relief of the complaint than is generally supposed; but the remedies, both internal and external must be varied according to their effects, and the particular circumstances of each case. Instead however of a bare enumeration of the remedies which have been tried, and occasionally found useful in chronic rheumatism, it may be advisable to attempt at least to point out a few principles that may prove of general application.

1. In some of the forms of sub-acute rheumatism, particularly lumbago and sciatica, the local abstraction of blood by cupping will be productive of great benefit. Where the pains are very severe, it may even be necessary to take blood from the arm, which in this state of disease, will always be found cupped and buffy. Leeches are well adapted to those cases of chronic rheumatism, where there is pain and

swelling of a joint from distension of the synovial membrane. Dr. Haygarth recommends their application where an enlargement of the extremities of the bones has taken place.

2. The cure of chronic rheumatism may occasionally be effected by promoting diaphoresis. This mode of treatment is adapted to those cases where there exists some degree of febrile excitement, where the pains are of recent date, and shift from one point to another. The warm bath may be directed twice in the week, and the diaphoretic draught (R N^o. 31.) consisting of the liquor amm. acet. and small doses of Dover's powder, given repeatedly during the day. It is unnecessary to add, that neither in this, nor in any other form of chronic rheumatism, can any thing be hoped for without proper attention to cloathing, and above all to the use of flannel as an under dress.

3. In the same description of cases which are benefited by diaphoretics, the vinum colchici may often be had recourse to with advantage. Where there is any considerable degree of effusion, either within the capsular ligaments or the bursæ, or where the cellular membrane in the neighbourhood of the joint is œdematous, I think too that I have seen the colchicum particularly useful. The form of draught, (N^o. 32.) may be recommended. A few grains of magnesia appear to be serviceable in obviating the disposition of this medicine to act upon the bowels. I have seldom experienced much benefit in this disease from the exhibition of antimony.

4. Where great torpor and debility of the general system prevails, stimulant and tonic medicines of different kinds have been administered with advantage, the principal of which are gum guaiacum and the volatile alkali (as in the form of the volatile tincture of guiac,) the oil of turpentine, the balsam of peru, and the cinchona bark. Their effects will be considerably aided by the diligent use of stimulating embrocations, such as the compound camphor or soap liniment, the friction alone appearing to be a powerful means of exciting the languid action of the vessels. In all cases of chronic rheumatism of long standing, permanent stiffness of the joint is chiefly to be dreaded, to which nothing contributes so much as neglect of the due exercise of the joint. To this therefore, patients should always be encouraged, as a matter of the utmost consequence to their ultimate recovery.

5. Mercury pushed so as to affect the mouth has frequently succeeded in the cure of chronic rheumatic affections. In many of these cases it has been supposed, that a syphilitic taint may have existed in the constitution and kept up the disease, but for the most part, there is no foundation for such a suspicion. Where rheumatic pains can be traced to cold while the system was under the influence of mercury, decoctions of sarsaparilla, guiac, and the elm bark, with other vegetable alteratives, may be tried with some prospect of advantage.

6. No one remedy perhaps is of such general ap-

plication in the treatment of chronic rheumatism as local warm bathing. In that severe form of the disease which has been called nodosity of the joints, scarcely any thing else can be relied on to sooth pain, and relax the rigid fibres. The efficacy of the waters of Bath and Buxton, even in very obstinate cases, is generally acknowledged. They are applicable however only in that species of rheumatism which is unattended by inflammatory excitement.

CHAP. XV,

OF THE GOUT,

Its Pathological connection with Rheumatism—Division into Acute and Chronic Gout —Symptoms of Acute Gout —of Chronic or irregular Gout—predisposition to Gout —exciting causes of Acute Gout—Proximate cause of Gout—General principles of the treatment of Gout.

GOUT is a disease which though possessed of many peculiar characters, is yet intimately associated, in a pathological view, with rheumatism. It is scarcely indeed two hundred years since they were first accurately distinguished.* But though the diagnosis is very important, and has contributed essentially to the elucidation of this branch of pathology, still it must not be forgotten, that a close affinity subsists between these diseases, that they run into each other by insensible degrees, and that the term *rheumatic gout*, so frequently employed in common life, is at the same time strictly scientific. The general features of resemblance between gout and rheumatism may be

* The term *rheumatism* was first employed, and the disease separated from the *arthritis* of old Authors, by Ballonius, in his Treatise “De Rheumatismo et Pleuritide dorsali.” 1642.

traced in the identity of the structures which are attacked, in the similarity of the terminations of the two diseases, and in their mutual tendency to affect some internal organ by metastasis. The leading points of difference are to be found in the joints principally affected, in the progress of the symptoms, in the *predisposing*, and lastly, in the *exciting* causes. All these are well expressed in Dr. Cullen's excellent definition of gout. It may fairly indeed be admitted, that no subject in the whole extent of medical science has been investigated with so much attention as the gout; and by no one certainly has that investigation been prosecuted with so much success as by Dr. Cullen.*

Gout, in its regular form, is a genuine inflammatory affection of the fibrous membranes, running a defined course, and attended by the common symptoms of inflammatory fever. This is the regular, or acute species of the disease. In a large proportion of cases, its attack is confined to a single joint, and that one, the first of the great toe. But as in other inflammatory affections, there is here also a chronic form of the complaint, called in common language the *irregular* gout; and to this a third variety may be added, which occasionally supervenes upon both the other species, — I mean the *retrocedent* gout,

* The account of Gout to be found in the *first lines* of this Author, is that to which I am chiefly indebted for the elementary view of the symptoms, causes, and treatment of the disease which is here given.

where a metastasis takes place to some internal organ, giving rise to the symptoms either of congestion or of inflammation.

An attack of acute gout sometimes comes on suddenly, without any warning, but for the most part it is preceded for two or three days by symptoms indicating general disturbance of the system. The principal of these are lassitude with depression of spirits, coldness of the feet and legs, numbness, with a sense of pricking or itching in the lower extremities, cramps of the muscles of the legs, an irritable state of the bladder, but chiefly a great degree of disturbance in the functions of the stomach. There are present also symptoms of fever, such as disturbed sleep, scanty and high coloured urine, cough with expectoration of mucus, and a costive state of the bowels. The attack of local inflammation commonly takes place about two or three o'clock in the morning, with more or less shivering, succeeded by the common symptoms of pyrexia, and almost always with intense pain of the joint. In a few hours the joint becomes swelled and red, and very painful to the touch. The feverish symptoms continue for three or four days, generally exhibiting the usual exacerbation towards evening. The redness and swelling then gradually abate, and as the disease wears off, it leaves the patient, not as in a common fever, weak and debilitated, but enjoying better appetite and better spirits, than he had experienced for some time before.

But this is only a *paroxysm* of gout. The dispo-

sition to recur, frequently too at regular intervals, constitutes another, and a most important feature of the disease. By degrees these intervals become shorter, and the paroxysms themselves more severe; and while the constitution falls more and more under the influence of the disease, it makes corresponding encroachments in respect of the parts which it attacks. At first, it confines itself to a single joint of one foot; by degrees it affects several joints, and both feet, either together, or in succession; and as the disease continues to advance, its ravages extend to every joint of the body. When it has subsisted for a certain time, a saline matter is thrown out by the inflamed vessels, and deposited upon the periosteum, the ligaments of the joints, the cellular membrane around them, the bursæ mucosæ, and even in some cases between the cutis and cuticle.* This accumulates after repeated paroxysms, so as to obstruct, during the intervals of health, the motions of the joint, and when fresh inflammation supervenes, to aggravate very considerably the sufferings of the patient. It is sometimes effused in such quantity as to occasion concretions of a large size, tedious ulcerations about the joint, or even complete ankylosis. The matter has been found, by analysis, to consist of the urate of soda. For this discovery we are indebted to Dr. Wollaston.†

* Vide "Moore on Gouty Concretions or Chalkstones." Med. Chir. Transactions, Vol. 1. Page 112.

† Philosophical Transactions, 1797.

In the chronic or irregular gout, the symptoms do not follow that defined course which I have stated to be observed in the acute species of the disease. The appearances of external inflammation are slighter, but it is attended with equal or even more œdema, and there is always much weakness of the neighbouring muscles, so that the motion of the joint is greatly impaired. Sometimes it leaves the joint first attacked, and fixes on some distant part ; or after harassing the patient by affecting different joints in succession, returns to that in which it was originally seated. With these local symptoms, are conjoined a variety of others, indicating general constitutional disturbance, such as feelings of languor and dejection, cramps in different parts of the body, particularly distressing at night, palpitation, costiveness, heart-burn, a chronic cough, and in the worst cases, wasting, and that general depravation of the whole habit which is commonly called *cachexia*.

The retrocedent gout is that form of the disease, where during the existence of the more usual symptoms, some internal organ becomes affected. The stomach, intestines, heart, and brain have at different times been observed to be the seat of retrocedent gout. Some differences of opinion exist as to the precise nature of the affection in cases of this kind. The symptoms, in many instances, warrant the suspicion of inflammation, but it is doubtful if this holds good, when the stomach or the brain are attacked.

There are several very important considerations

connected with the causes of gout, predisposing and occasional; but among them the first in point of pathological interest is the influence of *hereditary predisposition*. This principle is now for the first time brought under consideration, but it is one of extensive application, and it will hereafter be adduced to illustrate the pathology of some of the most important diseases of the body, such as hæmoptysis and consumption, scrophula, mania, and asthma. It may be stated as a general principle, that such an hereditary predisposition as we have supposed to exist, both with regard to these diseases and to gout, may be assisted by different circumstances, or it may be so far counteracted by others, as that it never shall exert during life any influence in the production of disease. Many persons too, without hereditary disposition, may acquire the gout or any other of these complaints, so that, as a doctrine in pathology, it must be received with limitations; but the arguments by which it is supported much more than counterbalance those by which some have attempted to subvert it. Hereditary predisposition is greater or less, according as it is on the side of both parents, or of one only. Attempts have been made to estimate the proportion which the cases of acquired gout bear to those where an hereditary disposition can be traced, but the calculations are far from being satisfactory.

Gout chiefly prevails among men. This is not to be ascribed to any peculiar exemption which the female sex enjoys from gout, but to a difference in those habits of life which contribute so materially to

the development of the disease. Where the gout appears in women, an hereditary predisposition to it will probably be met with, both on the father's and the mother's side. A gross and corpulent habit of body, with fulness of the veins, and a relaxed or loose state of the solids, is observed to give a predisposition to gout. The same remark however may certainly be extended to acute rheumatism. The exemption of youth from gout is a striking character of the disease, as was long since urged by Hippocrates. Dr. Heberden,* whose experience in gout was probably more extensive than that of any physician who ever lived, never saw an instance of it before the age of puberty, It seldom indeed appears before the age of thirty-five.

But of all the circumstances which give a tendency to gout, next after hereditary predisposition, the most important are full living, and especially the free use of animal food;—an habitual indulgence in wine,—and inactivity of body. The gout, therefore, is almost wholly unknown among persons employed in constant bodily labour, and who are chiefly supported upon vegetable aliment. It has been attempted, by several writers, to estimate the relative degree of importance which should be attached to each of these three predisposing causes of the disease, and pathologists have generally agreed in attributing to the free use of wine the principal share in the production of gout. Van Swieten states,

* *Commentarii de Morbis.* Pag. 33.

that the gout was unknown in Holland till wine was substituted for beer. This doctrine however admits of some doubt. The disease may be observed to occur frequently in certain classes of persons in this country, where an indulgence in animal food, and inactivity of body can alone operate. I am inclined to think, therefore, that these, if they have not a superior, have at least an equal share in occasioning that prevalence of the gout in the upper ranks of life, which is so universally acknowledged. They all concur in producing that plethoric state of the body, on which the predisposition to gout appears mainly to depend.

The exciting causes of the gout, or those which more immediately bring on a paroxysm, are of several kinds. They may be characterized, in a general way, as being such, as in a plethoric habit of body induce a state of weakness, or irritability. Of these, the most common are indigestion, produced either by the quantity, or quality of the aliment; intemperance, particularly in the use of *asescent* wines, such as champaign and claret; excess in venereal pleasures; intense application to study, with night watching; excessive evacuations; cold, especially when applied to the lower extremities; severe exercise, so as to occasion fatigue; sprains and contusions; and lastly, very sudden changes in the manner of living, not only from a low to a full diet, but what is important also in practice, from a full to a very spare diet.

The *proximate* cause of gout has been investigated

with great diligence by almost every writer on the disease. The favourite doctrine has been, that gout depends upon a certain morbid matter, always present in the body, which thrown out upon the joints, or other parts, produces the several phenomena of the disease. By some, even of the latest writers on gout, this theory has been supported, and the morbid matter has been pronounced to be an *acid*. Many ingenious arguments have been brought forward in its favour, but the doctrines of the *humoral* pathology have long since fallen into oblivion, nor is there any thing in these attempts towards their revival, important enough to justify us in separating this disease from those to which it is so obviously allied, and to which no such doctrine is even attempted to be made applicable. With respect to the analogy between gout and gravel, sufficient evidence has been adduced to render it probable that a pathological connexion really subsists between these diseases, but its precise nature has not hitherto been ascertained.

A regular fit of the gout is so far from being a disease of danger, that it is considered by many as the precursor of health and strength. It would be, perhaps, fortunate for gouty persons if there were less foundation for this opinion, for, under such an impression, a system is too often pursued which rivets the disease in the constitution, and ultimately undermines it. The principles of treatment in gout are different from those which obtain in other inflammatory affections. The paroxysm of

local inflammation not being attended with danger, may be to a considerable degree disregarded; while the efforts of the practitioner should be steadily exerted during the intervals of the paroxysms, to prevent their recurrence, by a due attention to the predisposing and exciting causes.

In a paroxysm of acute gout, the antiphlogistic regimen is to be enforced, the bowels are to be kept open by cooling laxatives, and saline draughts may be given at proper intervals. The efficacy of colchicum, in checking the first approach of a fit of the gout, and moderating its violence when it has come on, is established by very ample observation. For this purpose, either a drachm of the *vinum colchici*, or a proportionate dose of the *Eau Medicinale* may be given at once, or the draught (N^o. 32.) at proper intervals. It is seldom that general measures of greater activity than these are called for. With regard to local treatment, experience has fully proved that little is requisite. Cooling lotions are occasionally useful, but, in some instances, any application of cold to the affected joint increases pain, and is therefore inadvisable.

In cases of chronic or irregular gout, the plan of treatment is to be varied according to the symptoms which may arise, but no attempts are to be made by the liberal use of wine, or by local irritants, to bring on the acute state of the disease. A light diet, and regular moderate exercise, with laxatives, absorbents, and the occasional use of bit-

ters, so as to improve the tone of the system, and regulate the functions of the stomach and bowels, will be requisite in this form of the complaint. Where an internal organ is attacked, constituting the retrocedent species of gout, the treatment is to be conducted upon the same principles as are applicable in a corresponding idiopathic affection of the part.

During the intervals of the paroxysms, the great objects of attention are *diet* and *exercise*. There is high authority for saying, that the gout may be entirely prevented by constant bodily exercise and a low diet, and this, not only where an hereditary predisposition to it exists, but even where that disposition has already manifested itself by paroxysms of the disease. To ensure, however, the success of these measures, care must be taken to avoid all those *exciting* causes which were formerly enumerated.

It has always been an object of interest to discover some medicine that might obviate the necessity of any restraint upon the diet, or regimen of the patient; and at different times remedies have been extolled for the *effectual* prevention of the gout. The principal of these are certain combinations of bitters, and various forms of alkaline medicines; but though they may have succeeded, for a time, in warding off a fit, they are incapable of effecting any such change in the constitution as may altogether prevent the recurrence of the disease.

CHAP. XVI.

ERYSIPELAS.

Symptoms of the Idiopathic Erysipelas—its tendency to affect some internal organ—Causes of Idiopathic Erysipelas, predisposing and occasional — Question of its origin from Contagion—Principles of treatment in the Idiopathic Erysipelas—of the external treatment proper in this disease.

HAVING already offered an opinion regarding the general pathology of erysipelatous inflammation, having attempted, that is to say, to point out its seat, its relation to phlegmon, and the peculiarities which distinguish it, I have now to detail the symptoms, causes, and principles of treatment of that idiopathic form of the disease, to which the term ERYSIPELAS has been considered more peculiarly to apply. The general character of this disease corresponds perfectly with that form of the affection which is familiar to surgeons, as arising from burns and scalds, and as the frequent consequence of wounds, punctures, operations, compound fractures, and the application of poisons, or acrid matters, to the skin. Many of the observations, therefore, which

I shall have to offer on the idiopathic erysipelas, apply equally to the other forms in which this species of inflammation appears; but it will be more consonant to the general design of this work, to confine my attention to that form of the complaint which falls more exclusively under the cognizance of the physician.

The idiopathic erysipelas may commence on any part of the skin, but the face and legs are most usually affected. It is ushered in by febrile symptoms of considerable severity, which continue through the whole course of the disease. The pulse is always frequent, and commonly full and hard. The functions of the brain are much disturbed, and drowsiness, or confusion of the head, amounting in some cases to delirium, accompany the hot stage. On the second, or, at furthest, the third morning from the attack of rigor, redness and swelling appear on some part of the skin, very frequently on one side of the nose, spreading rapidly to the rest of the face, or extending over the scalp, neck, and shoulders. There is a distressing sense of heat, and tingling in the inflamed surface. The whole face becomes turgid, and upon the second or third day from the appearance of inflammation, the eye-lids are commonly closed. In some instances the disease goes off simply by desquamation of the cuticle, but more usually, after a certain time, blisters arise of different sizes, containing a thin yellowish or transparent serum, which speedily burst, and leave the skin in that part of a livid

colour. In some places purulent matter forms, and this is very frequently observed to happen in the loose cellular membrane of the eye-lids. A disposition to œdematous effusion is not uncommon, and under certain circumstances erysipelas verges to gangrene, but this is rarely observed except where it occurs as a consequence of severe injuries.

The duration of the disease is liable to considerable variation. In young persons it commonly terminates in six or seven days, but in those more advanced in life it is often protracted to the twelfth day, or even later. The febrile symptoms do not always cease with the subsidence of external inflammation. In the progress of the disease, and especially towards its latter stages, they assume in many cases a well marked *typhoid* character.

The tendency in erysipelas to spread to some internal organ, is a circumstance in the history of the disease of the utmost importance. It is the great source of *danger* in idiopathic erysipelas, and it regulates, in no inconsiderable degree, the treatment. Pleurisy or severe bronchial inflammation have been observed in some cases; but the brain is the organ chiefly liable to be affected. There appears indeed to be some peculiar and hitherto unexplained connection between erysipelatous inflammation and disease of the brain. The symptoms are those of phrenitic inflammation, and as far as my observation extends, the purest specimens of phrenitis met with in this country, are attributable to this cause.

In some cases the inflammation of the skin abates when the affection of the brain supervenes; in others, the internal and external inflammation proceed together.

The causes of idiopathic erysipelas are not well understood. There is in some persons a strong disposition to this kind of inflammation, and in them it is brought on by very trifling causes. This disposition appears in some cases to be hereditary, and it may possibly depend on some peculiar organization of the skin. To the latter circumstance we may perhaps refer the greater prevalence of the disease among females. It is certainly very remarkable, that while the erysipelas sometimes attacks the robust and plethoric, it is, upon the whole, much more commonly met with among those who have been debilitated, either by previous diseases, or long residence in a hot climate, or unwholesome diet, or bad air. It may occur at any age. There is a species of erysipelas which attacks new born infants, particularly in lying-in hospitals and workhouses;* but it is chiefly the disease of adult life, and of old age.

As keen a controversy has taken place regarding the contagiousness of erysipelas, as on every other occasion in which the doctrine of contagion is involved. Dr. Wells† has collected several examples of

* See Dr. Garthshore in Medical Communications. Vol. 2. Page 28.

† Transactions of a Society for the Improvement of Med. and Chir. Knowledge. Vol. 2. Art. 18.

the apparent communication of erysipelas by contagion in private families, but these cases are confessedly very rare. It appears to me however to be well ascertained, that it occasionally spreads by contagion in hospitals, particularly where there is a defective or an *ill-regulated* system of ventilation. While I admit this, I think at the same time, it cannot be questioned, that erysipelas prevails at some seasons, and under certain circumstances of the air, more than at others. What the peculiar conditions of the atmosphere are, which dispose to erysipelatous inflammation, have not been determined. The occasional cause to which idiopathic erysipelas is commonly attributed, is cold applied when the body is overheated ; but intemperance and exposure to strong heat have been also considered as giving rise to it. In many cases, no exciting cause of any kind can be traced.

The treatment of erysipelas has proved a fertile theme of controversy. It has been supposed, that the common principles applicable to other inflammatory diseases are inapplicable here ; but the supporters of this opinion do not seem to have taken into consideration the variety of causes from which erysipelas originates, and the almost infinitely varied circumstances of situation, age, and constitution under which it appears. Keeping these in view, it does not appear that any important difference of principle is to be established between the treatment of erysipelatous, and of common phlegmonous inflammation.

1. The acute idiopathic erysipelas of the face occurring out of an hospital, to a stout plethoric young man, is to be treated like any other inflammatory affection. Blood is to be taken from the arm, to the extent of sixteen ounces, and repeated if necessary. It is very seldom that more than two bleedings are required. Purgatives and saline medicines are to be given at the same time. The period of convalescence will be shortened by bark, and cordials.

2. If erysipelas occurs under circumstances less decisive of the inflammatory nature of the accompanying fever, the chief reliance should be placed on the exhibition of purgatives, particularly the saline purgatives, which have a very remarkable influence over this species of inflammation, and merit therefore a preference in every form in which it manifests itself.

3. When erysipelas occurs to aged people, when it originates decidedly from contagion, when it happens in an hospital to persons suffering under, or recovering from, a tedious illness, when it is attended by a feeble pulse, a brown tongue, and a disposition to gangrene, the system is to be supported (perhaps even from the very first) by bark, aromatics, the volatile alkali and wine. The draught (R N^o. 33.) may be recommended under these circumstances. With this plan the occasional exhibition of a saline purgative may be united with the best effect.

4. When phrenitic inflammation occurs as a con-

sequence of erysipelas, it is to be treated by venesection, blisters, and purgatives, not regulated by any consideration of its *cause*, but merely by the state of the pulse and character of the accompanying fever.

5. Different external applications have been proposed in erysipelas, such as cold lotions, warm spirituous fomentations, and dry powders. Their influence upon the disease does not appear to be very great, and therefore that one should be selected which best relieves the heat and uneasy sensation which the patient experiences. The cold spirituous lotion (R N^o. 34.) will commonly be found to answer this purpose. It is certainly preferable to the application of dry powders, which irritate the skin, and in this way often prove prejudicial. In most cases however of idiopathic erysipelas, it will probably be advisable to refrain altogether from local applications.

CLASS IV.

HÆMORRHAGIES.

CHAP. I.

GENERAL DOCTRINE OF HÆMORRHAGY.

Character of the order of Hæmorrhagies—degree of importance to be attached to the doctrine of Hæmorrhagy—Hæmorrhagies general or local—active or passive—connected with Plethora—and local congestion—and weakness of the coats of vessels—causes of Hæmorrhagy predisposing and occasional—General principles of treatment in the diseases of this order.

THE diseases comprized in the order of hæmorrhagies are, in every point of view, much less interesting than the inflammations. They are of much less frequent occurrence, and when they do occur, are seldom met with in an idiopathic form. Indeed, it is only by a stretch of nosological refinement that they can be considered in the light of a distinct order of diseases. The rupture of a blood vessel is not necessarily connected with a train of other symptoms, and is therefore itself rather an accident or a *symptom*, than a state of disease. While engaged in

the investigation of the phlegmasiæ, we were content to refer the phenomena to the presence of *inflammation*. In the class of hæmorrhagies we must always look to something beyond, and endeavour to determine upon what ulterior cause the rupture of the vessel depends.

The general doctrine of hæmorrhagy has nevertheless always excited attention in the schools of physic, and much learning has unquestionably been shewn in investigating the principles which it involves. Dr. Cullen's dissertation on this subject must always be considered a remarkable specimen of acute pathological research. But these discussions, not having the same influence on practice with some of those which have been already before us, do not require the same attention from the student, and will therefore be only briefly alluded to in this place. Without venturing however upon those abstruse theoretical speculations concerning hæmorrhagy, in which some authors have indulged, it may not be altogether uninteresting to notice the principal points which have been thought of importance; and this more particularly, as it will enable me to present a connected view of different diseases included in this order, the particular consideration of which will be taken up in future parts of the work. Although there may not prove to be many points of analogy among them, it will not be the less useful to notice the principal circumstances in which they differ, and above all, the various, and even opposite states of the system in which they occur.

1. Hæmorrhagies may be divided, in the first place, according as they are general, or local. A general disposition to hæmorrhagy is not common, but it occurs in scurvy, and in a disease of a very singular kind, known by the name of the *hæmorrhæa petechialis*. The pathology of this affection is but little understood. Different speculations have been thrown out concerning it, which will hereafter come under our notice, when considering the class of chronic constitutional diseases, but for the present, it may be sufficient to state, that it appears to be wholly different from scurvy, that it has some connexion with disease within the thorax, and that it is occasionally to be treated by antiphlogistic measures. A general disposition to hæmorrhagy occurs in many acute diseases, more particularly in different forms of inflammatory and typhoid fever.

Local hæmorrhages may be arranged according as they happen in one or other of the three great cavities or divisions of the body. Hæmorrhagy from the vessels of the head occurs either as *epistaxis*, or as *apoplexy*, diseases which have, in some cases, an important pathological connexion. Hæmorrhagy from the thorax is denominated *hæmoptysis*. Hæmorrhagy from the abdominal cavity assumes the several forms of *hæmatemesis*, *hæmorrhoids*, *hæmaturia*, and *menorrhagia*.

2. From the situation assigned to hæmorrhagic diseases in most systems of nosology, the student might be led to suppose, that they are usually accompanied by symptoms of *fever*, but one of the most

important considerations in the general doctrine of hæmorrhagy, is the frequency of its occurrence, without any evidence of febrile excitement existing in the system. In some cases, a hæmorrhagy is preceded by rigors, and during the flow of blood the pulse is frequent, full, or even hard, the skin is hot, and there is thirst and restlessness. At other times hæmorrhagy exists with a state of general constitutional debility, and arises from causes that obviously weaken the tone of the system, as is well exemplified in some of the cases of menorrhagia. These facts have long been known, and they have given rise to one of the oldest pathological distinctions among hæmorrhagies, viz. into the *active* and the *passive*.

3. It is obvious, that in estimating the circumstances which may lead to the accidental rupture of a vessel in an internal part, there are three which chiefly merit attention. The first of these is the quantity of blood in the body; the second is the force of the heart's action, (these two constituting the impetus, or *momentum* of the blood;) and the third is the strength of the coats of the containing vessel, depending principally on the *original* constitution of the body. By one or other of these considerations, we may explain the manner in which different circumstances act as the predisposing or occasional causes of hæmorrhagy, and the *modus operandi* of the remedies which are resorted to for its relief or removal.

1. Plethora, or præternatural fulness of the blood

vessels is a state of the body, the reality of which is established by ample as well as the most simple evidence. It is the common consequence of full living and of a sedentary life ; and it proves a frequent source of disease. A man too full of blood becomes heavy and languid. A state of over distension in vessels gives a disposition to increased action in them, and hence it is, that whatever leads to *general plethora* is so frequently found to be a predisposing cause of inflammation, and of hæmorrhage, and even of fever. It will be remembered however, that a state of plethora is by no means essential to hæmorrhage, which is compatible even with a state of morbid tenuity of the blood.

2. It cannot be doubted that the mere force of the heart's action has something to do with the occurrence of hæmorrhage, for heat and violent exercise of the whole body, as in running, are among the most frequent of its exciting causes, and they can only be supposed to act by hurrying the circulation. The idea entertained by old pathologists of a *spurious plethora* has been long abandoned. But the more necessary circumstance to be kept in view is the connection of hæmorrhage with the state of partially increased action of vessels, or irregular determination of blood, or as it is now more commonly called, *local congestion*. This has always been recognized as a principle in pathology of the highest importance, and it is undoubtedly the most generally applicable of any which have been established in the whole extent of pathological science. We have seen it

influencing the phenomena and treatment of every form of idiopathic fever. It is the very basis of all reasoning on the subject of inflammatory action, and we shall subsequently find it to extend to many of the most important chronic diseases of the body. In what manner this local determination of blood is brought about, how it is that the heart, which appears calculated to supply blood equally to all parts of the body, should distribute it unequally, are questions which the enquiries of physiologists have not hitherto enabled us to decide. The fact itself, however, is well ascertained, and it strongly illustrates the great principle which, though generally professed, has yet been too frequently lost sight of—that the doctrines of hydraulics are but distantly applicable to those of the circulation of the blood.*

With this doctrine of local congestion, that of hæmorrhagy is closely connected, as will hereafter be illustrated in several ways; by the phenomena, for instance, of epistaxis and apoplexy; by the effect of posture in favouring different forms of hæmorrhagy; and by the exercise of the lungs in singing, or loud or long speaking, occasioning a fit of hæmoptysis. We have already seen that the state of hæmorrhagy is sometimes dependent on that of *inflammation*, as in the instance of dysentery and

* See a very ingenious Essay by Mr. Charles Bell, entitled, “On the Forces which circulate the Blood, being an examination of the difference between the motions of fluids in living and dead vessels.” London, 1819.

pneumonia; and there is reason to believe that, in some other cases, the same pathological connexion may subsist, although it be much less apparent. The general analogy between these states of disease may be further traced in the similarity of their predisposing and exciting causes, in the effects of the *juvantia* and *lædentia*, and in the appearance of the blood drawn. In almost all cases of hæmorrhagy attended with symptoms of constitutional excitement, that is to say, in all states of active hæmorrhagy, the blood drawn will appear buffy and cupped. This phenomenon was considered by Dr. Cullen of such frequent occurrence as to merit notice in his definition of the order.

By some pathologists it has been conjectured, that the evolution of organs, at different periods of life, is one cause of those partial congestions of blood which take place in the body, and which, by over-distending a particular set of vessels, dispose them to rupture. It has generally been observed that epistaxis is the hæmorrhagy of childhood, hæmoptysis of the age of puberty, and that the abdominal hæmorrhagies occur in the more advanced periods of life. It is possible that many circumstances contribute to this peculiarity in the phenomena of the hæmorrhagies, but the theory which ascribes it to partial plethora from the evolution of organs, has probably some foundation in nature.

3. The third general condition of the body which we noticed as tending to hæmorrhagy, is a weakened

state of the coats of the blood-vessels. This usually depends on original formation of body, and it is not unfrequently hereditary. In some constitutions the arterial system appears to be peculiarly weak and lax; and it has been conjectured that this often occurs in those of a scrophulous diathesis. In such it is not unreasonable to suppose, that the blood-vessels will give way from the application of causes which would have no effect in a different habit of body.

It has frequently been made the subject of enquiry whether hæmorrhagy occurs from veins or arteries. Though arterial hæmorrhage is the most frequent, yet no doubt can exist that it may happen from both; but when it is further attempted to be shewn, that hæmorrhages are venous or arterial, according to the period of life at which they occur, and to connect this with certain supposed differences in the *relative density* of the coats of arteries and veins in youth, and at an advanced age, we probably overstep the just limits of pathological reasoning. The portion of the *venous* system most liable to hæmorrhagy is the vena portæ. It appears to differ in structure, as it certainly does in distribution, and probably in function, from the other veins of the body; and to partake closely of the nature of an artery. We presume, that in hæmatemesis, and in certain cases of the discharge of blood from the anus, the rupture takes place in some of the branches of the vena portæ.

Whenever there is a disposition to hæmorrhagy,

either venous or arterial, it is reasonable to expect that the vessels will give way in that part where they are least supported by integuments, or surrounding muscular or ligamentous substance. Hence we may perceive why hæmorrhages are so much more frequent from the lungs, and the vessels of the Schneiderian membrane, than from any other part of the body.

4. The general principles of treatment in hæmorrhagy must be varied to meet the varying circumstances under which it occurs. A very erroneous idea once prevailed in the schools, that hæmorrhagies were salutary efforts of nature, and that they were to be encouraged rather than checked. This doctrine originated, in part, from the temporary relief which the patient experiences from the discharge of blood, but the reasoning by which it is supported is vague, and the practice to which it leads, at least in the great majority of cases, dangerous. We may not always have it in our power to check hæmorrhagy, but we should at least attempt it.

The principal objects of treatment in cases of internal hæmorrhagy are four;—to diminish plethora, where it can be rendered probable that it exists; to lessen the *vis a tergo*, or the force of the heart's action; to induce the formation of a coagulum about the ends of the ruptured vessel; and lastly, to bring on contraction of the muscular fibres of the vessel, and of the parts in its vicinity. Upon one or other of these principles may be explained the mode of action

of each of those means, which have been found useful in the treatment of internal hæmorrhagy. They are blood-letting, digitalis, purgatives, cold, the exhibition of astringents, (such as alum, the superacetate of lead, and the mineral acids,) and lastly, opiates and tonics. Some degree of doubt prevails as to the propriety of administering opium in a state of hæmorrhagy, and it certainly is not adapted to every form of the disease. It is chiefly indicated where the hæmorrhagy is of the *passive* kind; and where it appears to come on from a *habit*, which the system has acquired of relieving itself at particular times. This disposition in hæmorrhagy arising from internal causes, to recur after certain intervals, and often at stated periods, is a very curious, but, at the same time, one of the most general and best established of the principles which regulate its phenomena.

The application of this principle to the treatment of hæmorrhagy, and the adaptation of the different means which have been enumerated, to the several circumstances under which hæmorrhagy occurs, will become objects of enquiry in future chapters.*

* Epistaxis, and Hæmoptysis, being the only species of Hæmorrhagy which are attended, in common cases, with *pyrexia*, and the consideration of which does not involve that of chronic local disease, can alone be considered with propriety in this part of the Work.

CHAP. II.

HÆMORRHAGY FROM THE NOSE.

Symptoms of Epistaxis — Periods of life at which it occurs — exciting causes — Epistaxis symptomatic of other diseases — treatment of Epistaxis, internal and external.

THE vessels that ramify upon the Schneiderian membrane are very numerous, and from their forming a net-work, which is covered only by thin and delicate integuments, easily ruptured. The flow of blood from them, when it does not happen from accidental causes, is usually preceded by symptoms marking a determination to the head, such as throbbing of the carotid and temporal arteries, head-ach, flushing of the cheeks, giddiness, and a sense of weight, or fulness, in the nose; or by such as indicate a general state of increased action throughout the whole arterial system, as a quickened pulse, restlessness, disturbed dreams, thirst, diminished secretion of urine, and costiveness. The blood commonly flows from one nostril only, but often in quantity that may reasonably occasion considerable anxiety. Nor is it the occurrence of a single fit of hæmorrhagy which is alone to be considered. In almost all cases, it recurs for several weeks, at certain intervals, and often tends very materially to weaken the body.

Epistaxis (for so this hæmorrhagy is called) happens equally to both sexes ; and it may occur at all periods of life, but it is chiefly observed to prevail among young persons advancing to puberty. In this case it may be considered as one of the evidences of that state of irregular distribution of blood, which characterizes the period of puberty, and which so strikingly manifests itself in the irritable constitution of the female. This principle in pathology will hereafter form the groundwork of our reasoning concerning the symptoms of *amenorrhœa*. The frequency of epistaxis at this period of life is very remarkable, and, there can be no question, that if it be not excessive, it is productive of no particular inconvenience ; —in some constitutions it may even serve to diminish plethora. If it recurs however with great frequency, and is very copious, it becomes an object of serious attention. It is then commonly said to mark a state of arterial plethora. This is doubtful. It much more obviously points out a state of weakness in the original structure of the vessels of the body. It was an observation of Hippocrates, that persons subject while young to severe and obstinate bleedings at the nose, easily fall into dangerous diseases of the chest, more especially peripneumonies, hæmoptysis, and consumption.

Hæmorrhage from the nose rarely occurs in the middle periods of life, but it again becomes common towards the decline of life, when it probably depends upon the same causes which lead to apoplexy and palsy.

Among the exciting causes of epistaxis, pathologists have enumerated both heat and cold, and in different ways it is evident that they may both contribute to the occurrence of the hæmorrhagy. It frequently comes on without the slightest apparent cause, but again, it is obviously attributable in some cases to exertions of the body, such as running, coughing, or blowing the nose. Particular postures favour it, as stooping, or lying with the head low. On this account persons liable to epistaxis are frequently attacked by it on first waking. Epistaxis is occasionally to be traced to the suppression of some usual evacuation, especially in young women, to the suppression of the menses. It has been observed, that when occurring under such circumstances, it has sometimes afforded relief to other symptoms.

Hæmorrhagy from the nose is itself a symptom of different diseases; and as such, it is, at least, equally deserving of attention as when it occurs in an idiopathic form. It is met with in some of the severest cases of inflammatory fever, in low typhus, in the small-pox, and in several chronic diseases, as hooping cough and scurvy. After what was urged in the last chapter, it will be unnecessary to say, that in each of these cases, the occurrence of the hæmorrhagy may be attributable to different causes. In the development of these we must be assisted by the consideration of the concomitant symptoms, but in conjunction with them, it will afford an important index of the *state* of the system, and prove an useful guide in practice.

It is a very old remark, that hæmorrhagy from the nose accompanies some forms of abdominal disease, particularly obstructions of the spleen. This observation I have frequently seen confirmed, but the obscurity in which the functions of that organ are involved, would alone prove an insurmountable obstacle to any attempt at an explanation of the phenomenon.

Idiopathic epistaxis when it occurs in young persons, and not in an excessive quantity, is scarcely an object of medical treatment. A light diet with an occasional dose of salts however will certainly be adviseable. In severer cases, cold is to be applied to the head and back. Purging, regular exercise, early rising, and a diet strictly antiphlogistic are then to be recommended. Under these circumstances, the tincture of digitalis in union with the sulphuric acid, (R N^o. 35.) will be found very useful.

In the worst cases it becomes necessary to plug up the nostrils both anteriorly and posteriorly, by dossils of lint dipped in an astringent solution, such as the liquor aluminis compositus. Blood-letting, which has been spoken of as likely to prove useful in obstinate cases of this disease, I can neither recommend from any advantage which I have observed to accrue from it, nor from any pathological considerations. The disorder of the system which gives rise to hæmorrhagy from the nose will be better relieved by a due attention to the state of the bowels, by diet, and exercise.

CHAP. III.

HÆMORRHAGY FROM THE LUNGS.

*Circumstances under which Hæmoptysis chiefly occurs——
predisposing causes——exciting causes——prognosis——prin-
ciples of treatment.*

THE discharge of blood from the lungs is usually accompanied by symptoms denoting determination to that organ, amounting in some cases perhaps to actual inflammation. There is a sense of fulness, weight, tightness, or oppression about the chest, increased on full inspiration, some uneasiness in breathing, and a short tickling cough. Symptoms of fever are also present, such as shiverings, pains in the back and loins, a flushed countenance, lassitude, costiveness, a dry skin, and a hard pulse; but these are subject to great variety. I have seen the pulse, for instance, feeble and indistinct, so as to be hardly perceptible. The spitting up of blood is commonly preceded by a degree of irritation felt at the top of the larynx, and a saltish taste perceived in the mouth. The quantity of blood brought up is very various. A slight tinge of the expectoration is sufficient to characterize the disease, as it marks the hæmorrhagic tendency, and may be quickly followed by a gush of blood. Again it is sometimes so profuse as to oc-

casion alarm for the immediate safety of the patient. It commonly recurs for several days together, and is often renewed upon very slight exertions. The blood is of a florid colour and frothy.

To distinguish this disease from hæmatemesis, or vomiting of blood, is often more difficult than might be anticipated, owing to the occurrence of vomiting during the discharge of blood from the lungs, but in most cases, an attention to the preceding symptoms, to the appearance of the blood, and to the general habit of body, will be sufficient to establish the diagnosis.

1. The most important considerations connected with hæmoptysis are those which relate to its predisposing and exciting causes, for by these we are to form our judgment of the probable termination of the disease, and in a great measure to be guided in our method of treatment. Of the former however, one only can be considered as under our controul, and that one, the least frequent of the whole;—I mean, *plethora* of the system generally. The simple rupture of a blood vessel in the lungs, from fulness of blood and increased action either within the chest, or throughout the body, independent of any peculiarity of structure, has sometimes been observed, but it is unquestionably a rare occurrence; and this cannot but be considered as a matter of surprize, when we reflect how numerous and how large the blood vessels of the lungs are, and by what a very delicate membrane they are covered and supported. Under such

circumstances however, hæmorrhagy may occur from the lungs, as from the vessels of the Schneiderian membrane. By rest and low diet, the ruptured vessel would soon heal without any further bad consequence.

2. The second predisposing cause of hæmoptysis, is the *scrophulous diathesis*, or that habit which is marked, among other peculiarities, by a general delicacy of structure throughout the body—light and thin hair, a smooth and soft skin, a lax muscular fibre and slender form. Of this delicacy of structure the blood vessels appear to partake; and consequently a disposition to *hæmorrhagy* becomes also a character of scrophula. That it should particularly appear in the lungs, might be conjectured from what has just been stated, but a further disposition in such a habit of body to this form of hæmorrhagy is given by *tubercle*, the connection of which with scrophula will be noticed in the next chapter.

3. The third circumstance giving a predisposition to hæmoptysis is *period of life*. It rarely happens to children under twelve years of age, and is not frequent after that of five and thirty. It chiefly prevails between the ages of fifteen and twenty-five. Pathologists have attempted in several ways to explain this circumstance. It has been said to depend upon the growth of the thorax continuing, after other parts of the body have been fully evolved, as is manifested in the increased width which the chest acquires at that period of life. Dr. Cullen has imputed it, in part at least, to a want of due balance between the

aortic and pulmonary systems, which must chiefly be felt at that age, when the former has arrived at its utmost extension and resistance. To whatever cause it is to be ascribed, there can be no question as to the general correctness of the position, that this particular period of life gives a remarkable predisposition to hæmorrhagy from the lungs.

4. The fourth predisposing cause of hæmoptysis is *malformation of the chest*, which obviously acts by preventing the due *expansion* of the lungs. Persons who have suffered in early life from rickets, to such an extent as to affect the spine or ribs, are very liable at another age to hæmoptysis. The scrophulous habit of body is characterized by prominent shoulders, and a narrow chest, and this is one, among other reasons, why the scrophulous diathesis is so frequently accompanied by a tendency to hæmoptysis upon all occasions which impel the blood with any degree of increased impetus upon the vessels of the lungs,—in other words, upon the application of the *exciting* causes. These are very numerous, some acting more immediately upon the lungs, and some indirectly through the medium of the general system.

Among the exciting causes of hæmoptysis which act directly upon the weak blood vessel, the most important are external injuries ; violent exercise of the whole body as in running, or wrestling ; or of the lungs in particular, as in loud or long speaking, playing on wind instruments, or glass blowing. Those which act indirectly are full living, and parti-

cularly the free use of wine, alternations of atmospheric temperature, and, as some allege, of atmospheric pressure; sudden exposure to cold after being over heated, the suppression of usual evacuations, and apparently in some cases, the amputation of a limb.

The *prognosis* in hæmoptysis is to be regulated by the following considerations. As far as it is idiopathic, and as the mere effusion of blood is concerned, it is certainly favourable. Dr. Heberden in the course of a long life, saw only one case of death from the excessive loss of blood. But in a large proportion of cases, hæmorrhagy from the lungs is but a symptomatic affection, and the prognosis merges in that of *consumption*. This consideration is one that opens a wide field of investigation, and if I have deferred to this period all allusion to the connection that subsists between hæmoptysis and consumption, it is not because I am insensible to its importance, but because I imagined it would be more for the advantage of the student to view the disease somewhat abstractedly in the first instance, and afterwards as forming one in that series of symptoms which constitutes *consumption*.

As the prognosis in hæmoptysis is intimately connected with that of consumption, so also is the prevention and treatment of the disease. All that I shall now attempt, therefore, is to point out, in a few words, the method of treatment which is to be recommended with the view of checking the *immediate* effusion of blood.

While the blood is actually flowing, little can be done further than to admit cool air, and to avoid every kind of exertion, more particularly speaking. Ice, or ice-cold acidulated drinks, may be freely administered. It commonly happens that, in the course of a few hours after the bleeding ceases, feverish symptoms come on. The pulse becomes full and hard, the skin hot, and there is a sense of oppression about the chest. Blood-letting may now be resorted to with good effect. The blood will generally be found buffy. A saline purgative is to be given, and cold acidulated drinks persevered in. The necessity of a second bleeding will be judged of by the state of the pulse, the habit of body, and the appearance of the blood first drawn; but, unless the symptoms are urgent, it will commonly be adviseable to trust, from this period, to nitre, the sulphuric acid, and tincture of digitalis (R N°. 35.) If the patient is threatened with a return of the hæmorrhage, recourse may be had to alum and the superacetate of lead (R N°. 36.) The bowels are to be kept open by saline purgatives. A light vegetable diet is to be directed, and by degrees some gentle exercise is to be taken. Where a fixed pain is complained of, and the smallness of the pulse forbids bleeding, a blister may be applied. With the view of relieving the cough, recourse may be had to a linctus of oxymel, or a mucilaginous mixture containing a proportion of the syrup of poppies.

CHAP. IV.

CONSUMPTION.

Pathology of Consumption——of Tubercle, its formation, and connection with Scrophula——diagnosis——Progress of the symptoms of Consumption——characters of Hectic Fever——prognosis——principles of treatment.

HAVING varied in several instances from the order of Dr. Cullen's nosology, it might be supposed that a favourable opportunity for a further deviation was now presented, and that to whatever part of the arrangement consumption might be transferred, it could not be placed with any degree of pathological correctness in the order of hæmorrhagies. But it must be borne in mind, that consumption is a disease of a peculiar kind which does not readily associate with any other, while, at the same time, its consideration is so complicated, that every assistance from the simpler subjects of pathology is required for its elucidation. It is, in the first place, a febrile disease, but the character of the accompanying fever differs from any thing we have yet examined. It is a chronic inflammation of the substance of the lungs, but the inflammation is modified by the presence of tubercles. It occurs, lastly, in that peculiar habit of body

which is characterized by a delicate organization of bloodvessels, and it exhibits, therefore, in all its stages, a strong disposition to hæmorrhagy.

The great and peculiar feature of phthisis pulmonalis is its connection with *tubercle of the lungs*, and before the phenomena of the disease, the diagnosis, or prognosis, can be properly understood, the nature of tubercle must be explained.*

Tubercles are rounded, firm, white bodies, varying from the size of a pin's head to that of a garden pea, frequently found interspersed through the whole substance of the lungs, but most usually met with in its upper and posterior parts. Frequently they occur in clusters. In their earliest state they are solid, and of cartilaginous hardness. No bloodvessels can be traced in them, even by a microscope, and the finest injection does not penetrate them. They are situate, not in the air cells, but in the proper cellular texture of the lungs, and they are without any cyst.

Even in this state, tubercles create a degree of impediment to the breathing, by occupying a considerable space in the body of the lungs. They prevent the free transmission of blood through that vascular organ, and occasion, therefore, a rupture of some of the smaller vessels, and consequent spitting

* On this subject consult Dr. Stark's Works, 4to. 1788 (or Med: Communications, Vol. I. Page 359;) and Dr. Baillie's Morbid Anatomy.

of blood, when by any cause the impetus of the blood is increased. But these are only a small part of the evils which result from the presence of tubercles. Though no bloodvessels can be traced in them, they are susceptible of inflammation, the effect of which is to convert the tubercle into a white capsule containing pus, or when a cluster of tubercles inflame together, to form an abscess of considerable size. The internal surface of the bronchia communicating with this abscess appears red and inflamed. The contiguous portions of the substance of the lungs are differently affected in different cases. Sometimes their texture is perfectly natural, but more commonly it is rendered red, solid, and impervious to air. The smaller bloodvessels are commonly destroyed, and the larger, before they reach the abscess, are wholly, or partially, filled with a kind of fibrous substance, by which severe hæmorrhagy is prevented, even though a great extent of the lung be injured. It is imagined that, upon an average, three-fourths of the substance of the lungs are rendered unfit for respiration in the progress of consumption.

Tubercles have been found occasionally in the lungs of children at a very early age, but they are not commonly met with until a short time before the completion of the growth of the body. In a few cases they appear to have been formed at a very advanced period of life. They are at all times morbid growths, and it is certainly an important object to determine, if possible, the manner in which their formation takes place, and the circumstances which

give occasion to it. On the first of these subjects a few conjectures have been thrown out, but nothing at all satisfactory has hitherto been ascertained. A disposition to form tubercle appears to be given by the frequent occurrence of catarrh and peripneumony, but the circumstance of by far the greatest importance in this view of the subject, is the connection of the scrophulous diathesis with tubercle and consumption. This appears in the frequent occurrence of phthisis in scrophulous families, and in persons who exhibit other marks of the scrophulous disposition. It is illustrated also by the analogy which subsists between the progress of inflammation in a tubercle, and in a gland affected by scrophula. In both it is of the same chronic kind, tending to the formation of the same sort of thick curdly pus, brought on by the same causes, and relieved by the same means.

But consumption is not always connected with the scrophulous disposition, or dependent upon the inflammation of tubercle. *Tubercular* phthisis is indeed the most frequent species of the disease, but it occurs also as a consequence of inflammation, either of the substance of the lungs, or of the mucous membrane of the bronchia, and in persons altogether free from the suspicion of a tendency to scrophula.

When pneumonia terminates in suppuration, sometimes one large abscess, sometimes a number of small

abscesses are formed, by which the greater part of the substance of the lungs is destroyed. The symptoms observed when the disease has arrived at this point, do not differ in any material circumstance from those of the latter stages of tubercular phthisis, but the previous occurrence of acute pneumonia will always be sufficient to establish the diagnosis.

There is more difficulty in distinguishing between tubercular phthisis and that state of chronic bronchial inflammation, either with or without ulceration of the membrane, which has lasted a considerable time, and come at length to be accompanied with great weakness and emaciation. With such a disease of the bronchia, genuine consumption is occasionally united, and the attempt to distinguish them therefore would sometimes be quite in vain; but as the prognosis in the latter complaint is certainly more favourable than in the former, the diagnosis is of great importance in many instances. We are to be assisted in it by observing the general aspect of the patient, by a knowledge of his constitution and family predispositions, but, above all, by a diligent enquiry into the *progress* of the symptoms. The usual train in which they occur in cases of *tubercular* consumption may be thus briefly detailed.

A slight tickling cough is one of the first symptoms that mark the formation of tubercles in the lungs. The patient is languid, and has the feeling

of slight pains in some part of the chest, when he ascends a flight of stairs, or takes any considerable exercise. The pulse will commonly be found, even in this early period of the disease, somewhat accelerated. These symptoms however, being very slight, are often overlooked, both by the patient and his friends, until the occurrence of hæmoptysis, which may be said to characterize the first stage of phthisis pulmonalis, with as much certainty as purulent expectoration does the second.

By degrees the cough becomes more and more troublesome. A fixed pain in some part of the thorax, or about the pit of the stomach, will now be complained of. Respiration is hurried, and the patient is unable to expand the chest, even in the slightest degree. There is difficulty in lying on one or other side, or sometimes on the back, and, at length, the nature of the disease is put beyond doubt by the occurrence of purulent expectoration, and hectic fever.

The expectoration of a thick pus, generally in the form of globular lumps, of a straw colour, occasionally tinged with blood, and always more or less mixed with mucus, is indeed the peculiar feature of this disease; but perhaps too much stress has been laid upon the necessity of distinguishing in pulmonary diseases between the different *kinds* of expectorated matter. An extensive observation of disease will shew, that its appearance varies extremely, not only in different individuals, but even in the

same individual on different days, and that its qualities may alter, without materially altering the danger, still less the nature of the disease.

Hectic fever is the fever of irritation and weakness. It is commonly attendant on extensive and protracted ulceration, because this is one of the most common ways in which that irritation throughout the body, and that degree of constitutional weakness is kept up, which is necessary to its development. But genuine hectic sometimes occurs without any ulceration, as in delicate women who suckle their children too long, and in the latter stages of diabetes. Under all circumstances it presents very nearly the same characters. It is a *remitting* fever, having its exacerbation between five and six o'clock in the afternoon, at which time rigors occur, lasting about an hour, and succeeded by an increase in the quickness of the pulse, the heat of skin, the thirst, general uneasiness, and restlessness. About ten o'clock at night the sweating begins, which is the natural crisis of the hectic paroxysm. The patient then gets some sleep, but the sweating for the most part continues, and when he wakes in the morning he finds himself bathed in perspiration. It is a remarkable circumstance that this disposition to sweating is sometimes local, being confined, for instance, to the head and neck, or to the inferior extremities. These are the *colliquative*, or weakening night-sweats, which afford so striking a characteristic of hectic fever.

The pulse in this form of fever is always very quick, generally averaging 120, but frequently it will be found for weeks together as high as 144. The skin is hot, but not in proportion to this extraordinary rapidity of the pulse. The vessels of the adnata lose whatever redness they may have had in health, and the eye becomes of a leaden or pearly hue. The countenance is pale in the morning, but towards evening, when the febrile exacerbation occurs, the cheeks exhibit that circumscribed redness, known by the name of the *hectic flush*. The urine, from the very first, is high coloured, and deposits that copious branny red sediment upon which the older pathologists laid so much stress.

Under common circumstances, the functions of the stomach are but little impaired. The appetite may even continue good. There is not much thirst, except towards night, or what results from the medicines taken; and the bowels are at first unaffected. Yet with all this, emaciation takes place, and frequently proceeds rapidly, and to an extreme degree. This is first observable in the face, which becomes thin and long, and the eyes appear sunk in their orbits. Closely connected with the emaciation, is the loss of muscular power, which also proceeds to a great extent, and is often the earliest prominent symptom of this peculiar affection of the system.

A circumstance well deserving of attention in the phenomena of hectic fever, as pointing out a striking difference between it and idiopathic fever, is the

little disturbance which takes place in the functions of the brain. Head-ache does not always occur during the periods of exacerbation, and it is seldom present at other times. Delirium is very rare, except perhaps for a few hours before the patient's death. Even this is not constantly observed, for in many instances the senses remain perfect even to the last gasp of breath which is drawn. A degree of languor generally prevails, but in a large proportion of cases the mental faculties continue quite unimpaired throughout the disease. I have sometimes even thought, that a præternatural vigour of mind was perceptible while the body was suffering under the most exquisite form of hectic. One exception must be made, applicable at least to that which attends consumption. On the prospect of his own recovery, the judgment of the phthisical patient is nearly always erroneous. The most obvious indications of danger are overlooked; and, full of hope, he is busied only in the anticipation of approaching convalescence.

The only other peculiarity of hectic fever which I have to notice, is the tendency which exists, in its latter stages, to an affection of the mucous membrane of the ileum. This is indicated by colliquative diarrhœa, and a præternatural redness and *tenderness* of the tongue, followed in most cases by the appearance of aphthæ in the mouth. On dissection of those who die under such circumstances, inflammation and ulceration of the ileum of a peculiar character are sometimes met with, but not so constantly

as to allow us to say, that in all cases, these symptoms are dependant on such a state of the intestine.

Such are the characters of hectic fever, and as they are always most strikingly displayed in the progress of tubercular consumption, they will seldom fail, in conjunction with the local symptoms already enumerated, to afford evidence which will be sufficiently decisive of the nature of the disease. There are some symptoms however which occasionally occur in the progress of consumption, which require a separate notice. I may first mention that it is not uncommon to have in this disease an accession of acute pleurisy, or of inflammation of the peritonæal surface of the liver. Further, as phthisis frequently supervenes on other diseases, its symptoms are sometimes so complicated with those of the primary disorder, that much discrimination is required in forming a judgment as to the true nature of the case. In many instances the symptoms of such diseases correspond very closely with those of phthisis, and this applies more especially to certain morbid states of the larynx and trachea, and to some obscure affections of the heart and great vessels.—I have already (pages 236 and 237) alluded to the hoarseness which attends consumption, and to that sympathetic affection of the larynx which is so frequent in its latter stages.

Dropsy, particularly of the cellular membrane, is by no means uncommon in this disease. A degree of œdema of the feet and ancles is sufficiently decisive

of it, but it frequently extends also to the legs and thighs. This has commonly been attributed to *debility*, to that same relaxation of the capillaries to which we are in the habit of ascribing colliquative perspirations. But this theory is doubtful, because in many cases, where an equal or even a greater degree of muscular weakness prevails, there is no appearance of dropsical effusion. Dr. Hastings is inclined to attribute it to the mucous membrane of the bronchia becoming implicated in the disease.

It is unnecessary to treat formally of the prognosis in this disease. The common observation of the world has sufficiently stamped its character as the most destructive disease in this island,* and, in its confirmed stage, almost hopeless. The duration of the complaint, however, it is scarcely possible to define with any degree of accuracy, for a galloping and a lingering consumption are almost equally frequent. A French author, speaking of the usual duration of phthisis, informs us that out of 200 cases, 104 died within nine months. In many cases there are threatenings of the disease for several winters before the symptoms assume any degree of urgency. They are often checked by the return of mild weather, but perhaps even in a still more remarkable manner, by pregnancy. The months of December and January are observed to be particularly fatal to

* The annual deaths in England by Consumption are calculated at one in five of the whole mortality, and amount therefore annually to about 55,000.

phthisical patients. Sometimes they die from extreme weakness, exhausted by the discharge of pus, and the colliquative perspiration and purging; at other times more suddenly, suffocated by the accumulation of pus in the bronchia, which they are unable to expectorate; and in some rare cases, by the rupture of a large blood vessel in the lungs, in consequence of ulceration.

It is melancholy to reflect how very little this disease is under the controul of medicine; and before I can enter upon the consideration of the principles which are to guide us in its treatment, I must record the failure of every plan for its effectual cure, which human ingenuity has yet devised.

The first principle which it appears to me of importance to inculcate is, that in phthisis active measures cannot be pursued, and that this must be compensated by a strict attention to a number of lesser circumstances, which in many other diseases may be neglected without detriment to the patient. We are to bear in mind, that consumption, though an inflammatory affection, is principally characterized by its occurring in a *scrophulous*, which is commonly a weak habit of body, and in an organ loaded with tubercles, the inflammation of which runs rapidly to suppuration. The chief objects of consideration, therefore, are how these tubercles may be either absorbed, or kept in a quiescent state; in what respect their treatment, when inflamed, differs from that of common pneumonia; and how the constitution may

be best supported in the protracted suppuration to which their inflammation leads.

The question has been frequently agitated, whether tubercles can be absorbed, and by what medicines that desirable object can be effected. Emetics have been recommended by some, the muriate of baryta by others; but though there is every reason to believe, that tubercles have in some cases dispersed, yet this effect appears to be as completely out of our controul, as the manner of their formation is beyond our knowledge. All that can reasonably be expected from medicine, is to keep them in a quiescent state, and this is to be done by a strict attention to diet, air, exercise, and by avoiding all those causes which we noticed in the last chapter, as likely to bring on hæmorrhagy of the lungs.

The diet of a person who has shewn a disposition to phthisis, should be nourishing, and calculated to afford strength to the system, without creating a disposition to febrile excitement. For this purpose, farinaceous preparations of all kinds with milk should be recommended. Animal broths with fish and a proportion of plainly dressed meat may also be allowed, but all highly seasoned dishes, and food which is difficult of digestion, and fermented and spirituous liquors are to be strictly prohibited. Nothing appears more likely to correspond in every respect with this *indication of cure*, than the breathing a free and pure air, and its advantages in consumptive cases are generally acknowledged. The patient should be sent

therefore to the country, and if possible a situation selected, which is sheltered from cold bleak winds, and where the soil is gravelly.

To those whose circumstances will admit of it, we should advise the removal to a warm climate. Consumption, though far from being uncommon in the southern countries of Europe, is, upon the whole, less frequent there than in cold climates; but between the tropics it is a disease nearly unknown. This consideration, were it not for the danger of the endemics of those countries, would induce us to prefer the Bermudas, or even the West India Islands, as a residence for consumptive patients. But even the South of Europe, particularly the climate of Naples, holds out many advantages, and a timely removal thither, with regularity of living, may be recommended to those who are threatened with consumption, with a fair prospect of overcoming the tendency to the disease.*

With the enjoyment of a free and pure air, moderate exercise should also be advised. A sedentary mode of life, and close application to study, or business, have frequently proved the exciting cause of the disease; partly, perhaps, by the bent position in

* This point, and the utter hopelessness of success from the removal to a warm climate in the advanced stages of consumption, have been lately urged upon the attention of practitioners with much force, by Dr. H. W. Carter. See "*Remarks upon the effects of a Warm Climate in Pulmonary Consumption and some other Diseases.*" Medical Transactions. Vol. VI. 1820.

which the thorax is so long kept, but principally from the want of that due exercise which is essential to the preservation of the health and strength of the body. With the view of affording at the same time, both exercise to the body and relaxation to the mind, a journey during the summer months is particularly useful.

When hæmoptysis has occurred, and when the symptoms warrant the belief that inflammatory action is going on in the lungs, measures of more activity must be pursued. Bleeding from the arm has been recommended as a means of putting an *immediate* check to the progress of the disease; but this is a vain hope, and bloodletting must therefore, at all times, be resorted to with caution, and a due consideration of the habit of body in which consumption occurs. Where the pulse is hard and contracted, and the pain and cough urgent, blood must be drawn from the arm as in pneumonia, and repeated according to the strength of the habit, and severity of the symptoms. At any period of the disease, if pleuritic symptoms supervene with a loaded state of the tongue, blood may be taken away; and commonly a few ounces taken from the arm will be preferable to the application of leeches.

Blisters afford great relief to the cough and tightness across the chest, and they may be repeatedly applied with great advantage through the whole course of the disease. I have never seen sufficient benefit derived from issues and setons to warrant

me in recommending them. Active purging is inadmissible, but an occasional dose of castor oil, or of rhubarb, will be found very useful. The mild diaphoretic and expectorant medicines may be exhibited frequently through the day. Attention to the state of the skin, indeed, is very necessary in this disease, as in every other in which the lungs are implicated. An uniform temperature of the body should be promoted by warm cloathing. In some cases it may be necessary, during the whole winter, to confine the patient to apartments which are of a regulated temperature.

In this state of disease digitalis is universally employed. That its powers have been extravagantly over-rated, I cannot doubt, but it appears in some cases to quiet the cough, and to be an useful narcotic. In this view, I am inclined to think it preferable to conium, and even sometimes to opium. I have never observed any good effect to follow from pushing the dose of this medicine to such an extent as materially to affect the pulse.

In the confirmed stages of consumption, it will be advisable to support the strength of the system by mild tonics; and the *mistura ferri composita*, in doses proportioned to the state of the system, is, perhaps, under all circumstances, the best form of tonic which can be recommended. In many cases, however, it seems to increase the febrile excitement, and to aggravate the cough and dyspnœa.

Attention must chiefly be paid in this state of the disease to palliate the urgent symptoms. Cough may be alleviated by demulcents ; diarrhœa may be diminished by chalk, catechu, and aromatics. Both these objects will be promoted, and the further advantage gained of procuring sleep, by the last resource which the art of medicine affords, opium.

END OF THE FIRST PART.

APPENDIX.

FORMULÆ

REFERRED TO IN THE PRECEDING PAGES.

No. 1.

R. Pulveris ipecacuanhæ scrupulum,
Aquæ menthæ sativæ drachmas decem;
Misce. Fiat haustus.

No. 2.

R. Potassæ nitratis grana quindecim,
Aquæ unciam,
Syrupi limonum drachmam; Misce.
Fiat haustus quartis horis repetendus.

No. 3.

R. Liquoris ammoniæ acetatis drachmas tres,
Aquæ menthæ sativæ drachmas sex,
Syrupi aurantiorum drachmam;
Misce. Fiat haustus quartis horis repetendus.

No. 4.

R. Pulveris antimonialis grana quinque,
Hydrargyri submuriatis granum;
Misce. Fiat pulvis.

No. 5.

R. Infusi sennæ drachmas decem,
Magnesiæ sulphatis drachmas tres,
Tincturæ sennæ drachmam;
Syrupi drachmam;
Misce. Fiat haustus.

No. 6.

R. Pulveris jalapæ grana viginti,
Hydrarg. submuriatis grana quatuor;
Misce. Fiat pulvis.

No. 7.

R. Misturæ camphoræ unciam,
Tincturæ opii guttas triginta,
Liquor: antimon. tartariz: guttas quindecim,
Syrupi croci drachmam;
Misce. Fiat haustus.

No. 8.

R. Misturæ camphoræ drachmas decem,
Tincturæ opii guttas quadraginta;
Spiritus ætheris sulphurici drachmam,
Syrupi drachmam;
Misce. Fiat haustus.

No. 9.

R. Decocti cinchonæ sescunciam,
Extracti cinchonæ grana quindecim,
Tincturæ ejusdem drachmam;
Misce. Fiat haustus.

No. 10.

R. Potassæ nitratis grana quinque,
Aquæ menthæ pulegii drachmas quatuor,
Liquor: antim: tartariz. guttas quinque,
Tincturæ digitalis guttas quinque,
Syrupi drachmam;
Misce. Fiat haustus, tertia quaque hora sumendus.

No. 11.

R. Mucilaginis acaciæ uncias duas,
Aquæ distillatæ uncias quatuor,
Syrupi tolutani,
Aquæ cinnamomi, singulorum unciam;
Misce. Sumat cochleare unum amplum urgenti
tusse.

No. 12.

R. Olei amygdalæ unciam,
Acaciæ gummi drachmas tres,
Aquæ distillatæ uncias septem,
Syrupi rhæados semunciam;
Tere oleum diligenter cum gummi, dein adde gra-
datim aquam, et syrupum.
Sumat cochl. duo ampla quater indies.

No. 13.

R. Cetacei drachmas duas,
Vitellum ovi,
Syrupi althææ semunciam,
Aquæ cinnamom sescunciam,
—— distillatæ uncias quatuor cum semisse;
Misce. Sumat cochleare unum amplum frequenter.

No. 14.

R. Infusi rosæ uncias septem cum semisse,
Mellis rosæ semunciam,
Tincturæ capsici drachmam ;
Misce. Fiat gargarisma.

No. 15.

R. Decocti cinchonæ,
Infusi rosæ, singulorum drachmas sex,
Acidi sulphurici diluti guttas sex;
Misce. Fiat haustus ter indies repetendus.

No. 16.

R. Hydrargyri submuriatis grana tria,
Pulveris rhei grana septem ;
Misce. Fiat pulvis.

No. 17.

R. Aquæ cinnamomi drachmas quatuor,
Tincturæ digitalis guttas tres,
Oxymellis scillæ drachmam dimidiam,
Tincturæ camphoræ compositæ guttas decem,
Misce. Fiat haustus tertiis horis sumendus.

No. 18.

R. Hydrarg. submuriatis grana duo,
Sacchari albi grana octo ;
Misce. Fiat pulvis omni bihorio sumendus.

No. 19.

R. Aquæ pimentæ unciam,
Nitri grana decem,
Magnesiæ sulphatis scrupulum,
Tincturæ digitalis guttas decem,
Syrupi rosæ drachmam ;
Misce. Fiat haustus quartis horis sumendus.

No. 20.

R. Pilulæ hydrargyri grana duo,
Pulveris antimonialis grana quatuor ;
Misce. Fiat pilula quartis horis cum haustu salino
adhibenda.

No. 21.

R. Hydrarg. submuriatis grana quinque,
Pulveris digitalis grana quinque,
Extracti conii drachmam ;
Misce, et divide in pilulas quindecim, quarum
sumat unam ter die.

No. 22.

R. Olei ricini drachmas duas,
Mucilaginis drachmas duas,
Aquæ rosæ drachmas decem ;
Misce. Fiat haustus tertia quaque hora sumendus.

No. 23.

R. Magnesiæ sulphatis drachmam,
Infusi rosæ unciam,
Syrupi drachmam ;
Misce. Sumat haustum tertiis horis.

No. 24.

R. Fructus tamarindi unciam,
Foliorum sennæ drachmam,
Seminum coriandri semidrachmam,
Sacchari semunciam,
Aquæ bullientis unciæ octo ;
Maceræ in vase clauso, et post horas duas cola.
Sumat cochlearia tria majora omni hora ad alvi
solutionem.

No. 25.

R. Hydrarg: submuriatis grana tria,
Extracti colocynth. compos. grana quinque ;
Misce, et divide in pilulas duas.

No. 26.

R. Extracti taraxaci drachmam dimidiam,
Aquæ menthæ sativæ sescunciam ;
Misce. Fiat haustus meridiæ, et vespere sumendus.

No. 27.

R. Olei ricini drachmam,
Mannæ semidrachmam,
Pulveris acaciæ scrupulum,
Aquæ pimentæ unciam ;
Misce. Fiat haustus quintis horis sumendus.

No. 28.

R. Infusi rosæ drachmas decem,
Magnesiæ sulphatis drachmam dimidiam,
Tincturæ opii guttas quatuor,
Syrupi rosæ drachmam ;
Misce. Fiat haustus sextis horis sumendus.

No. 29.

R. Hydrarg. submuriatis granum,
Extracti conii grana quatuor,
Fiat pilula omni nocte sumenda.

No. 30.

R. Calomelanos grana decem,
Opii grana duo; Misce.
Fiant pilulæ duæ, mane et nocte per tres vices
sumendæ.

No. 31.

R. Misturæ camphoræ drachmas sex,
Liquoris ammoniæ acetatis drachmas tres,
Pulveris ipecac: compos. grana sex;
Misce. Fiat haustus sextis horis sumendus.

No. 32.

R. Misturæ camphoræ unciam,
Vini colchici semidrachmam,
Magnesiæ grana decem;
Misce. Fiat haustus sextis horis sumendus.

No. 33.

R. Decocti cinchonæ drachmas decem,
Confectionis aromaticæ scrupulum,
Tincturæ cinchonæ compositæ drachmam;
Misce. Sumat haustum quarta quaque hora.

No. 34.

R. Liquoris ammoniæ acetatis uncias tres,
Spiritus vini unciam,
Aquæ fontanæ uncias duodecim;
Misce. Fiat lotio.

No. 35.

R. Infusi rosæ drachmas decem,
Tincturæ digitalis guttas decem,
Acidi sulphurici diluti guttas decem,
Syrupi rosæ drachmam;
Misce. Fiat haustus ter die sumendus.

No. 36.

R. Plumbi superacetatis grana duo,
Extracti hyoscyami grana tria;
Misce. Fiat pilula mane et nocte sumenda.

For the convenience of Gentlemen attending the Author's Lectures, he subjoins a sketch of the arrangement of Chronic Diseases which he adopts, and which will be followed in the Second Part of this Work.

PART II. CHRONIC DISEASES.

CLASS I. CHRONIC DISEASES OF THE ENCEPHALON.

- Chap. 1. Character and connection of the Chronic Diseases of the Encephalon.
- Chap. 2. Apoplexy and Palsy.
- Chap. 3. Epilepsy.
- Chap. 4. Mania.
- Chap. 5. Chorea.
- Chap. 6. Tetanus and Hydrophobia.
- Chap. 7. Neuralgia.

CLASS II. CHRONIC DISEASES OF THE THORAX.

- Chap. 1. Bronchœcele.
- Chap. 2. Asthma.
- Chap. 3. Hooping Cough.
- Chap. 4. Angina Pectoris.
- Chap. 5. Syncope and Asphyxia.

CLASS III. CHRONIC DISEASES OF THE CHYLOPOIETIC VISCERA.

- Chap. 1. Dyspepsia, and Hæmatemesis.
- Chap. 2. Jaundice.

- Chap. 3. Diarrhoea and Cholera.
- Chap. 4. Colic, and Ileus.
- Chap. 5. Worms.
- Chap. 6. Marasmus.
- Chap. 7. Hæmorrhoids.

**CLASS IV. CHRONIC DISEASES OF THE URINARY
AND UTERINE SYSTEMS.**

- Chap. 1. Calculus.
- Chap. 2. Nephritis, Ischuria, and Hæmaturia.
- Chap. 3. Amenorrhoea and Chlorosis.
- Chap. 4. Menorrhagia.
- Chap. 5. Hysteria.
- Chap. 6. Diseases of the Ovarium.

CLASS V. CHRONIC CONSTITUTIONAL DISEASES.

- Chap. 1. Scrophula.
 - Chap. 2. Rickets.
 - Chap. 3. Scurvy.
 - Chap. 4. Hæmorrhoea Petechialis.
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